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By ALFRED BESTER**

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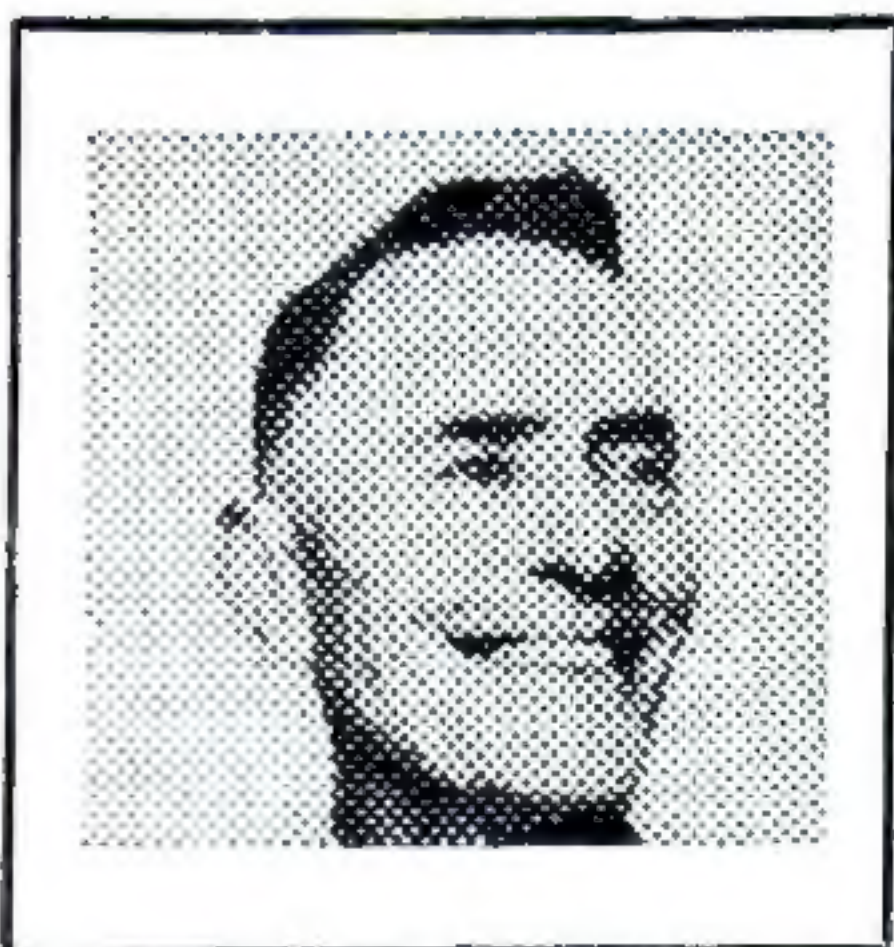
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AFTER



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The Magazine of Prophetic Fiction



Vol. XVII, No. 1
July, 1940

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The cover painting by Howard V. Brown depicts a scene from H. L. Gold's story, OUT OF THE DEPTHS.	

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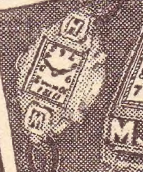
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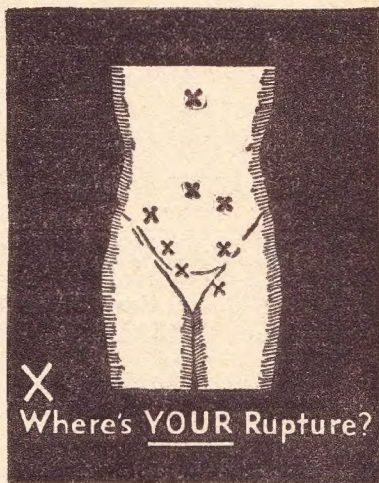
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THE STORY BEHIND THE STORY

IF you enjoy tackling scientific problems . . . problems that aren't too technical, but which can be solved through the use of applied logic, then you certainly will go for the feature novel in this month's special scientfiction novel section, **THE EXPERIMENT OF DR. SARCONI**. A fantastic dilemma confronts Dr. Shallcross, the hero in this story by Harry Bates. Dr. Shallcross' wife has been created in plural, and several exact human replicas of her exist. Which one of the several is the genuine? That's the enigma that stumps our hero.

Can you outguess Dr. Shallcross and arrive at a satisfactory solution before the author actually gives you the dramatic answer? You'll be going some if you can bust this riddle before the hero does.

Harry Bates is new to T.W.S., but old-timers will recall Mr. Bates as the editor who brought Anthony Gilmore's famous Hawk Carse series to scientfiction prominence more than a decade ago. We've often wondered what happened to Hawk Carse, and perhaps Bates can induce his confidant, Anthony Gilmore, to bring us his exploits once again. As for the lowdown on this novel, here's the real McCoy direct from the author:

What is the story behind **THE EXPERIMENT OF DR. SARCONI**?

Well, I was talking to my old friend Anthony Gilmore, and ribbing him on the Jekyll-Hyde make-up of his mind, which alone would account for the success of his well known character Hawk Carse and that intrepid adventurer's insidious adversary, Dr. Ku Sui. I happened to ask him why he had stopped writing that series, and he told me it's a funny thing, but every time he starts to work out another Ku Sui deviltry for Hawk Carse to thwart his mind gets stuck on one plot subject, one idea, one only, which rides his mind like the Old Man of the Sea, and insists on being written as is, and prevents consideration of any other plot possibility, and will not be shaken off.

And what is this compulsive idea? I asked, surprised.

Gilmore's eyes gleamed and he licked his lips.

Suppose, he said—suppose Ku Sui were to invent a way to make every woman in the world instantly into **two** women, that is, gives every woman an exact double! Think what that would do to the institution of marriage! Think of the predicament of a hundred million lovers! (Gilmore, dominated by the Ku Sui aspect, positively glowed in pointing out the terrible possibilities.) That villainy would be tops for even that greatest dastard of all time, Ku Sui! What a job for Hawk Carse!

A tremendous conception, I said—but you're whacky if you think **THRILLING WONDER**

(Continued on page 122)

SHE KNOWS HOW



AND SO DOES
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Author of "The Broken Axiom," "No Help
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VOYAGE



Three Outlaws—Three Worlds—Three Fates—and a Journey to Infinity! Follow the Argosy of Men vs. the Stars and Destiny

CHAPTER I

Cleanup on Jupiter

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The others too, bore unmistakable marks of imprisonment. The Martian *theta* was branded on the cheek. The blood-red Jovian cross was tattooed

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Periodic raids bore no fruit with this Jovian Khasbah. The Red Spot was closed and destroyed regularly, only to reopen shortly after, in other secret quarters under the city streets. Behind the tavern doors, criminals planned more daring crimes to the despair and helpless dismay of the police.

Now the sudden shrill blasts of a

siren sent up a howl of rage in the tavern. Vitrex glasses were thrown to the floor as the outlaws leaped to their feet and darted to the rear. There the broken walls opened out to the tunnels of the surrounding cellars.

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swung the huge chromium structure noiselessly into a recess in the wall. A second later, one touched a concealed stud. It sent the entire safe compartment speeding down through a railed tube to a vault some hundred yards distant. Then they took up their stand before a smaller strong box, containing a few hundred units of platinum and gold, the decoy for the raiding police.

MEANWHILE the room had cleared entirely. As the police tore in through the entrance ramp, they saw only the two bored men nonchalantly awaiting capture. The captain of the Rangers walked up.

"It won't be so easy this time," he said. The two guards yawned elaborately and the captain's face purpled. "There won't be any quick bail, space rats. This is a cleanup for keeps! The Governor-general is pretty sore about the whole business. You fellows went too far, trying to pull a snatch with his kid."

The keepers of the decoy laughed carelessly.

"This is no picnic," the captain insisted grimly. "We've got every tunnel covered. No one escapes, even if we have to search every damned asteroid in the System."

A dull uproar from beneath seemed to bear out what he had said. As the sounds increased, a horde of enraged men poured into the tavern, driven by the police who had anticipated them far back in the passages. The room began to fill up with hundreds of criminals, enraged at finding their usually safe escapes so completely covered.

At last the farthest tunnel was cleared. The mass of refugees stood angrily within a heavy cordon of armed guards. The captain sounded his shrill pocket siren once more, and there was an answering signal outside.

"All right!" shouted the captain. "Don't make it tougher for yourselves, rats. Just file out up the ramp, and don't think any of you can make a break for it."

Herded roughly, like stubborn, sulken animals, the dregs of the Red Spot were swept along the ramp. The lines of guards inspected them expertly for

concealed weapons, and shoved them into the armored police tractors, drawn up in rows on the street outside. In lots of twenty they were locked in the heavy metal boxes, to wrangle and fight among themselves as they were drawn to the central administration building for speedy trial and sentence.

The captain looked about the wrecked cellar wearily.

"Well," he said with a sigh, "I hope this is the last time. Shades of Tethys, what a crew of cutthroats!"

Inside the detention quarters, two guards hustled their rotund prisoner along the quarter-mile, dimly lit corridor. They halted before a small circular door set in the metal wall. Wordlessly they pressed the combination studs that swung the ponderous disc open, and thrust the stumbling man roughly inside.

The door closed with a clang of steel on steel that reverberated dimly in the pitch blackness of the cell. As the sound died away, aching silence swept over the room once more. The man fumbled his way to a bench and sat down with a leathery squeak.

"Esplee d'un warstyx!" he called in the Martian tongue, and then in English. "Hullo. Anyone here?"

"Shh!" someone whispered from the other side. "Quiet!"

SOFTLY two figures joined the third on the bench. They sat huddled close together, their heads almost touching.

"The room may be tapped for sound," came the voice almost inaudibly. "Micro-wave pickup. We've got to be careful. I'm Daavle from Venus."

"Meeg, from Mercury," said a second.

"My name is Wisphthal," answered the newcomer. "I'm from Mars. Say, why so dark in here?"

"Deportation-detention Cell," came the answer. There was a dry chuckle like the sift of sand. "They don't take chances with desperate criminals."

"Were you picked up in the raid, too?" Wisphthal.

"Raid? What raid?" one demanded.

"Give us news. We've been here three weeks."

"The Red Spot," explained the Martian. "Raided last night. Got everybody!"

"Hell," muttered the Venusian. "The cells must be jammed. Guess that's why you're in with us."

"It's a plant," hissed the Mercurian excitedly. "He's been sent in by the guards!"

"What're they going to do with you?" the Venusian asked.

"Send me back to Mars, of course," he growled.

"Want to go back?"

"No! Cut out the grilling. If you've got an escape in mind, count me in. I'm no space rat."

There was another long pause.



Daavie

Wisphthal

A hand grasped at the Martian's shoulder and scratched for his neck. He tore the claws away.

"Easy," he said. "What makes you so jumpy?"

There was no answer. The Martian could hear a rapid whispered conference.

"Yes," admitted the Venusian at last. "We're figuring on breaking out."

The Martian flexed his muscles.

"Good," he said. "When?"

"That's the hitch," put in the Mercurian. "We've got everything planned except the way out of this cell."

Once we're out, the rest will be simple."

"We'll have to rush the guard, next time he comes in," said Daavle. "It may be risky, but we've got to chance it."

"You'll never get past the guard," answered the Martian. "At least, not that way. I'm just the man you needed. I can get you out for sure . . . If you want to take a chance on me."

"Not so loud!" hissed Meeg. "Yes, we're with you. Have you got a gun?"

The Martian laughed again.

"I have something better than a gun," he said. "It was difficult to conceal, but I managed. Now, listen. Are there guards in the corridor?"

"Just one."

"Good," the Martian whispered. "Now pay attention. Go to the corners of the room. Lie down and face the wall. Keep your eyes closed if you value your lives. Don't look until I tap your shoulders."

The two men slipped from the bench. They wedged themselves against the walls and turned their faces down. The Martian waited for a few seconds until all was quiet.

"Help!" he shouted. "Guard!"

THERE was a patter of running feet outside the door. A click of the pressed lock studs and the steel disc swung inward. A Jovian guard stood silhouetted against the dim corridor light.

"R'tah!" he barked. "What's the matter here?"

From the depths of the room a thin pencil of light stabbed out and centered on the Jovian's eyes. He gave a muffled exclamation, half raised his own gun to fire and then lowered it in strange fascination. The beam changed color abruptly, left his eyes and focused on the right wall.

Suddenly the guard turned his head and dashed madly in the direction of the tiny violet spot on the wall. He collided against the metal with a sickening impact, reeled dizzily and looked around. By this time the light was flashing on the far side of the cell. Once again the Jovian hurled himself across the room to crash violently against the

steel. The metal cracked him upright.

He teetered for a split second, then sank to his knees, sobbing. There was the thud of a fist on jaw, and he sprawled, unconscious, to the prison floor.

The Martian snatched up the fallen L-pistol and ran quickly to each man, tapping lightly. The two got to their feet and followed him to the door. They stole into the corridor. Meeg, the Mercurian, pointed silently. They sped down the long steel hall until they came to an open room.

The Venusian peered around the door jamb.

"Guard room," he whispered. "Shoot high. At their heads. Don't ruin their guns."

The Martian advanced to the edge of the door and took careful aim. There were two dull pops. The outlaws rushed into the room before the headless torsos slumped to the floor. They picked the two guns from the belts and looked at each other grimly.

"Take them," whispered Meeg, the Mercurian. "Come on, let's go!"

They passed through the high-vaulted room and darted up another long corridor. Suddenly Meeg pulled to a halt.

"No more time to work our way out," he blurted. "The alarm'll be sprung in less than a minute. I know a window. Quick, we'll have to jump for it."

He led them through a dark hall, up a flight of steps and into an enormous gallery.

"I know this place pretty well," he grinned mirthlessly. "This is the Judiciary Chamber. The windows over there are only fifteen feet off the ground. We've got to try it."

The men looked at him with appalled faces. A fifteen foot drop was a serious matter on Jupiter.

"Well, what do you say?" Meeg spat out. "You want to stay here and drink a glass of brhodium with the damned guards?"

He ran to the windows. The others followed. Suddenly the crash of huge metal gongs echoed through the building.

"That's it," growled Meeg, his eyes slitted. "Here I go. Watch how I do it."

HE lifted a heavy boot and kicked through the lower frame of the window. There was a twang of snapping vitrex and the creak of bent struts. He thrust his head through, looked about, and lowered his body from the sill. When he hung by his fingertips, he let go. Scratching and clawing furiously at the slick metal, he dropped heavily to the ground.

The others watched him get to his feet and beckon encouragingly. They followed, then crouched panting beside the wall.

"To the left," said Daavle, the Venusian.

He darted along the wall until he came to a small court, set back twenty feet. He turned and waved impatiently until the rest had caught up. Then they crept in and the three men watched while Daavle fumbled in a corner. They heard the ring of steel and then Daavle's low call.

"Can you swim?" he asked.

They nodded. He heaved on a large metal square until it upended to disclose a vertical shaftway.

"Sewer," he said shortly. "Anyone got a light?"

Wisphthal felt in the pockets of his tunic and withdrew his small metal tube.

"Press the base stud for light," he explained. "But don't touch the stud on the side. It's dangerous."

Daavle nodded and disappeared down the shaft. The others took the short downward plunge into the water. Daavle was already treading water far down the sewer main. Wordlessly they swam behind the violet glow of the lamp that Daavle held in his teeth.

CHAPTER II

Escape Into Space

IT seemed an eternity before they came to a pump station. They pulled up, dripping and exhausted, on the small platform.

"What now?" puffed Meeg.

"We continue for a half mile down the sewer," rasped Daavle. "There's another pumping station there, and a

vent that leads to the space port. Maybe we'll get a break there."

"If it has anything to do with machinery," put in the little Mercurian, "I'll be able to handle it."

They slipped into the water again, half wading and half swimming, following the unerring course of Daavle. He led them through the maze of steel tunnels without faltering.

The water rose and became more turbulent. The men were swept along, battered against the steel sides of the sewer with sickening force. Once the torrent swept Wisphthal into a wrong turn. He clung perilously until the others pulled him around to the right course.

At last, when their strength was almost gone, Daavle uttered a faint cry. They followed eagerly, and found themselves at another small platform, where they pulled up and lay weak and gasping.

"This is below the main hangar of the space port," said Daavle. The pumping station opens in full sight of the observation tower. We've got to be careful now. The chances are all against us."

"Wait," interrupted Meeg. "It's my turn now. I think I know a ruse that might prove effective here."

The others watched him as he slowly climbed up the latticed steelwork that braced the vent shaft and station, the violet lamp held in his mouth. Above, the strange glow flickered about, casting enormous shadows. There was a grating sound and an exclamation from the Mercurian.

Meeg stood beside a heavy panel board on which were a set of locked levers. He waited until the others climbed up, and then looked at the Venusian.

"Can you get above and open the vent panel from the inside?" he asked.

"Yes," said Daavle, his tone curious.

"How about you, Wisphthal?" asked Meeg. "Can you climb up quickly?"

"Don't worry about me, Mercurian," said Wisphthal grimly. "I'll get up as fast as you want."

Meeg handed the lamp to Daavle, turned and re-examined the control panel.

"When I give the word, I want

Wisphthal to kick up the first two levers on the board here. We all count off the seconds. At thirty, Daavle goes up and opens the vent. We follow. We've got to be out by the count of sixty."

They nodded, wondering. At a word from Meeg, the Martian delivered two heavy kicks that smashed the safety locks and drove up the two levers. They counted intensely, above the low squeal of grinding machinery.

On the mark of thirty, Daavle scurried up the vent shaft. Ticking the seconds off desperately, the remaining three followed. The shaft was dark and they could hear Daavle smashing at the vent plate above.

THERE was a sudden clattering crash above and the dim moon-glow filtered down. Daavle threw himself over the lip and was followed by Wisphthal. Below, a heavy rumbling choking echoed and Meeg squirmed frantically toward the surface. From the observation tower, a hundred feet east of the vent, came the glare of a searchlight.

"Never mind them," screeched Meeg. "Get me up!"

They groped frantically in the darkness for his wrists, found them and swung him over. He blinked once in the glare of the beam and darted for the cover of the hangar wall.

"Come on," he yelled.

A deafening roar blasted at the base of the shaft and an enormous geyser of foaming water spouted from the vent in great gouts.

They could hear the alarm of a siren sound faintly above the roar. Meeg had closed the emergency lock at the lower end of the sewer, backing the water up and forcing it out at the vent under terrific pressure.

"We've got a chance now," yelled Meeg. "We timed it just right. Everybody on the field will be at the sewer vent. What do we do now?"

"After me," shouted Wisphthal. "I think I know what to do."

He motioned them to follow him and crept around the base of the hangar to the west side. As they looked back they could make out running figures and the huge bulk of the emergency

field tractor.

The Martian darted up the long side of the hangar, waited for his panting companions to catch up. Then he sauntered around the corner and nonchalantly pushed open a small door. He glanced in, nodded and motioned the others to enter. Then he stepped in and closed the door.

It was a small room, cluttered with lockers and racks of metal-mesh space suits. Wisphthal picked one from the wall and started to squirm into it.

"Don't be too long about this," he said calmly. "They'll have the sewer under control in a few minutes. We've got to work fast."

He snapped the helmet in place and shut the visor, effectively disguising his face. Then he turned and helped the others. When all were clad in the gleaming metal, the Martian stepped to the door and peered out cautiously.

"Now follow me," he said. And whatever you do, don't run!"

The three figures strode quietly across the vast landing field, unnoticed by the scurrying crews who were vainly attempting to stem the roaring sewer torrent. They passed the observation tower and turned to the left. They walked out of the beacon into the gloom of the center take-off concrete. They passed a small industrial cruiser, cut around a fat wallowing tanker and slipped behind the huge frame of a navy patrol. Wisphthal stopped them.

"This is it," he said.

"Stealing a navy ship," muttered Daavle. "That's dangerous."

The others had to laugh.

"What were you in the Deportation room for?" Meeg wanted to know. "Playing static golf?"

WISPTHAL hushed them. "Chances are that the ship'll be empty, what with Meeg's little trick. But take it easy, anyway. You have your L-pistols."

They pulled out their weapons and stole to the open hatchway that stood amidships, five feet off the ground.

They struggled over the sill into the shadow of the airlock. Meeg closed the outer port and silently spun the locking wheel.

"Suppose there are too many in

here," objected the Venusian. "How are we going to get out? You're closing up our line of retreat."

"No, he's right," whispered Wisphthal. "This is our last chance. This ship has to get under way even if we're fighting at the same time."

They waited until Meeg had made everything fast and then tiptoed through the other door of the lock. The mess room was empty, as was the corridor which ran the length of the ship.

They darted through the long center passway, peeping into the equipment and stock rooms. All were unoccupied.

In the forward observation room, Meeg breathed a sigh of relief and seated himself in the pilot's chair. He made a quick check of the control board and then turned sharply to the others.

"She's ready to go," he said. "I'm taking her up!"

Wisphthal nodded. "We'll check the rest of the ship. Get her out as quickly as possible."

Meeg threw the anti-gravity screen switch. The others, trooping aft, could feel the huge ship silently lift to the upper strata.

It sped upward with increased acceleration. The cutting of the gravitational bond served to fling the ship away from Jupiter on a tangent at 8500 miles per hour.

The two men were combing the ship so intently that they almost forgot to notice the sudden bellow of the rocket discharge and the violent lurch as the ship gained headway.

Not until the vessel was well out of the upper Jovian atmosphere were they satisfied that the ship was empty. They walked back to the forward pilot room and slumped down exhausted.

Meeg locked the automatic pilot into place and turned to face his companions.

"Well," he grunted through his visor, "let's make ourselves comfortable."

He began to shuck out of his space suit. As the others followed his lead, they took stock of each other with frank curiosity. This was the first chance they had had to look their sudden companions over.

MEEG, the Mercurian, was a small wiry man, with a shriveled, mummylike skin. His eyes were tiny pinpoints, set deep in the recesses of narrow, conical sockets. He looked like a smoked, dried-out eagle.

Daavle, the Venusian, looked like any other inhabitant of his planet. His skin was iridescent with tiny multicolored scales. He had large, unblinking eyes, set well to each side of his earless head. His mouth had the harsh contours of the beak of a snapping turtle.

Wisphthal, the Martian, was squat, roundish and leathery. He looked like a chubby man dressed in black alligator leather tights, and his beady black eyes were reptilian in their glitter.

They dropped their metal suits to the floor and lounged back luxuriously on the cushioned seats. Daavle's sensitive fingers touched the small metal tube that Meeg had given him shortly before. He took it out, examined it curiously and then tossed it to its owner, the Martian.

"That's a strange thing," he remarked. "I've never seen anything like it before."

"Yes," answered Wisphthal. "It's an invention of mine. Burnt out now. Using it in the sewer exhausted the power." He gave it to the others to examine, lit up and went on reflectively. "Funny thing. That's what got me into the Detention room — and that's what got us out."

The others exchanged glances. The code of the spaceways forbade questions, yet the men were curious about the strange weapon.

"Oh, well," laughed the rotund Martian, sensing their interest. "I'll tell you. I suppose we all have our pasts. My real name is— Well, no matter. I have seven degrees and for ten years was occupant of the Chair of Radiant Chemistry at Vega University. But I began to have trouble over the little matter of living research subjects. So I left the University and came to Jupiter.

"I didn't come purely out of impulse. Word had got around about my work and I received an offer from Allied Munitions to do research in their laboratory. Naturally I had to sign an

exclusive rights contract with the firm. But I figured that if I found anything really worthwhile, I could always keep it secret.

"It happened that I got on the track of something. I was working on radiations designed to inhibit animal irritability. In other words, when you see, hear, think and react to sensations, that's animal irritability. The radiation I developed would slow down those functions to nullity. Make you deaf and blind—sluggish.

"Allied Munitions weren't squeamish. I asked for subjects and they gave 'em to me. They had a regular press gang operating in the dives around Jupiter. My experiments were progressing nicely when suddenly I stumbled on something tremendous. A radiation that would produce acute positive phototropism.

“YOU fellows understand that? When a moth flies into a candle, that's positive phototropism. Well, I worked like a madman, trying to finish one for Allied and the other for myself. Somehow they got wind of what I was doing. So they hinted to me in a nice way that I'd better not try anything funny.

"I thought I could outsmart them. I finished this little ray tube here. The gun is simple. You play beam X on the subject for less than three seconds and induce a forced phototropism. Change to beam Y and he'll run after the light until he kills himself. Beam Y, incidentally, is the violet light you saw in the sewer. It's perfectly harmless unless exposure to the preliminary radiation makes you phototropic to it.

"Well, I finished the gun and decided to skip. The morning I was getting my papers together, the president of the company walked into the lab and forced a showdown. He said that unless I handed over all my research notes in one hour, they'd make things plenty tough for me.

"I was prepared for that. I'd been investigating their press gang work. I told him that if he started anything with me, he'd find himself up on charges not so easy to fix.

"Oh," he said, "I'm so sorry. I see we can't do anything for you any

longer."

"He didn't leave me in doubt when he walked out of the room. I knew that the company railroaded its rebellious research men. I grabbed my notes, smashed out through the window, and ran off the grounds. I did what anyone else would do. I fled to the Red Spot, just in time to get picked up.

"When they arraigned me, the company had the charges waiting. Murder, with a complete list of the subjects I'd used. Treason to an interplanetary utility, and perjury, by reason of the broken contract. I was unable to give testimony because of the perjury charge. They sentenced me to deportation to Mars, for the most the criminal code can do to a man.

"I don't know if you're familiar with the highest Martian penalty. It's solitary confinement — *for life!* I could stand anything but that. I'd permit myself to be killed like any of my poor experimental victims, without ever thinking to escape. But to be sentenced to that!"

CHAPTER III

Escaped Punishments

WISPHTHAL shivered violently as if trying to brush away the thought. Daavle tried to look undisturbed.

"Take it easy," he said. "We're all in the same soup. You think solitary confinement is tough? Listen to what I got waiting for me—"

"Me too," interrupted Meeg.

They looked at each other and grinned wryly.

"I haven't much of a story," said the lithe Daavle, "because I haven't much brains. I'm a Venusian. You all can see that. I can't do anything but swim. Biologists say we're descended from pisces, and it looks as though they're right. I came to Jupiter as part of a variety act. I used to do swimming and diving tricks in a big glass tank at the Io Theatre."

"Yes," nodded Wisphthal. "I've seen that act."

"It broke up," continued the Venusian. "Left me stranded without a milleunit. I don't know how your press gangs missed up on me, Wisphthal. I'd gladly have let you kill me for a solid meal. What with my temporary stay papers past due, no fare home, I was officially an alien.

"I bummed around through the dives, trying to find something. Once a fellow came up and spoke to me about a job, but it seems he thought I was someone else. All us Venusians look alike. You can't tell us apart. The only way we Venusians can recognize each other is by a highly developed sense of odor.

"Anyway, that little conversation gave me an idea. He'd mentioned burglary. I figured I could swim. They had a sewage system running through the entire city. Why not study to break into those wealthy homes that have fountains?

"It didn't take me long to work out the system of tunnels. Any Venusian can hold his breath for thirty minutes running. One afternoon I swam up through a small grid into a gorgeous marble pool. I was in a garden, smack in the center of a gigantic mansion. I slipped out of the pool and ducked behind a clump of shrubbery because I'd heard some voices. Pretty soon a young girl came into the garden with a baby.

"Then I thought there was no use stealing a little gold or platinum. Here's a rich man's kid, nice and ripe for a kidnaping. They could never identify me because we all look alike.

"I jumped out of the brush in front of the girl. I grabbed the kid and turned for the pool. The girl held on to my arm so tight I had to hit her face before she'd let go. I could hear her scream all the way down the sewer.

"I held the kid up on my shoulder, took a roundabout way, worked down to the shipyard section. Maybe I took too much time. When I finally came out, a guard was waiting for me with an L-pistol.

"Of all the kids to take I had to pick the Governor-general's. He'd sent out an alarm and they had a guard at every sewer vent in the city. Well, the kid drowned. I'd forgotten she wasn't like

me. They didn't take much trouble with me in court. They prepared the evidence and got me ready for deportation to Venus. Hell, Wisphthal, you're complaining!"

DAAVLE looked at the Martian inscrutably, his sinewy hands twisting.

"Know what the Venusian penalty is? Garrote!" He shuddered, and felt his long snake-like neck gingerly. "They tie a rope around your neck and twist it slowly, slowly, until you strangle. Venusians can hold their breath for half an hour. It takes hours and hours to strangle them. I'd rather be blasted down than go back to that. . . ."

Meeg, the spidery Mercurian, burst into a harsh laugh and Daavle turned fiercely.

"What's so funny?" he demanded.

"Since we're all taking our hair down," answered Meeg, "you might as well hear about me. All my life I've been prospecting the planets, hunting for radium mostly, and never with much success. If I'd put the same energy into a steady job I might have earned a decent living. But I didn't feel like doing it that way.

"Anyway I thought my break came, one day. I'd been prospecting illegal territory, the savage reservation down at New South Clode. I happened on a small race of Jovians, partial imbeciles like the rest of the protected tribes.

"I landed my ship and looked about. Those morons had once been great. They had the ruins of great buildings, big as hell. They even had a broken-down, forgotten museum. In it I found a small whirling disc suspended on a pivot. It whirled and twisted endlessly.

"I asked the people what it was. They couldn't tell me, could hardly speak a coherent tongue. All I could find out was that it had been made centuries ago by one of their scientists and had been whirling in the museum ever since. . . ."

"Perpetual motion," interrupted Daavle excitedly.

Wisphthal smiled and Meeg, seeing he understood, winked to him.

"Yes," he continued, "that's what I thought. I went over to the case and made a motion to take the thing. The people didn't seem to like the idea. They yelled and made a dash for me. I ripped out my L-pistol and let loose a blast that cut the whole circle down with a thump.

"I stalked to the door and peppered off the rest of them. I didn't want one of the idiots to make a dive for me when I picked up the whirling machine case and all, and made for my ship. There was one or two of the idiots left, lurking in the ruins, but they only stared. Hell, I didn't give a damn about slaughtering the whole tribe. They were only savages.

"When I got my ship a couple of hundred miles away, I took a look at the thing, and would you believe it? It stopped going. . . ."

"Stopped?" questioned Daavle.

"Right. Hung limp as a piece of wet vitrine. I almost went crazy. I figured I must have broken it when I was accelerating. I examined it carefully, studied all kinds of books. But no use. Finally I took a chance and brought it to one of the professors at the Jovian College. He was an absent-minded old bat, so I didn't think there was any chance of him stealing it.

"He took one look at the machine and asked me where I got it. I gave him a sun-spotty story and he grunted and went into his lab. In two minutes there were half a dozen guards in the place and they hauled me over to the court."

"Jailed?" exclaimed Daavle. "But what for?"

"Because I was a fool, an uneducated fool," explained Meeg grimly. "Every scientist knew about that whirling toy. Even Wisphthal here, knew immediately as soon as I began my story. . . ."

THE Martian nodded quietly.

"Yes," growled Meeg, "it was nothing more than a simple toy. It seems it was operated by Alpha radiations from a small deposit of radioactive mineral in the vicinity of the tribe. When the old fool saw the machine he knew I'd stolen it from the reservation, and he notified the authorities. They weren't so bad so long

as they thought I'd stolen the toy. But when they investigated—"

"Well?" questioned Daavle.

"I got the best they had to offer," answered Meeg, his mummy-like face expressionless. "They gave me deportation home with a sure Mercurian death sentence waiting for me. You know how they kill on Mercury? Nice and civilized. They put you in a chamber and exhaust the air with a pump. Not too fast, of course. Could anything be worse than that?"

"Well, my friends." Wisphthal's chuckle sounded like the hiss of an alligator. "I see we are not nice people, and we did not have pleasant futures awaiting us. That, however, is something of the past. We have a whole Universe to consult at present—"

"Yeah?" broke in Meeg, staring gravely ahead. "You think so? Come and take a look."

They rushed quickly to his side and followed his gaze to the rear visoscreen. Far in the deep black background was the bright orange and red tennis ball that they had shortly left, two of its moons showing like sparkling gibbous specks. But what made them gasp was the unmistakable crimson streamer of a rocket ship in full acceleration, just behind.

"Less than ten thousand miles astern," grunted the Mercurian.

He strapped himself into the pilot's seat. "You fellows better hang on. We're on the fastest ship in existence and I'm going to shake this crate loose somehow!"

"Wait," interrupted Wisphthal sharply. "Let us take positions at the gun ports."

He was jerked off his feet by the violent shaking of the entire vessel. Suddenly the ship lurched crazily to starboard. The men went tumbling down into the right corner of the room.

Meeg cursed and struggled helplessly with the controls.

"Hey!" he yelled. "Are you all right?"

Dazedly they crawled out of the jumble and answered him.

"What's happened?" demanded Daavle, rubbing his slender body ruefully.

"Took a pot-shot at us with the long range vibro-guns and made a lucky hit. Not bad, just enough to clog a blast vent."

"Well, can the ship travel?"

"Yeah. That is, if you are content with three-quarter speed."

They looked at each other in consternation. At that rate the pursuit ship would be in range inside of ten minutes.

"Can't you do something?" yelled Daavle.

Wisphthal shook his head grimly.

"All right," the Venusian shouted. "Let's give 'em a real fight." He picked up his metal space suit and turned for the gun ports.

"Wait a minute." Little Meeg turned to Wisphthal, his tiny eyes blazing in their conical sockets. "Get at the controls. I know how to clear a clogged vent. When Daavle gives you the all-clear signal on the wire you can start accelerating. And don't anybody use those vibro-guns. You'll tear my head off."

WISPHTHAL nodded and clamped the pilot phones over his ears. Motioning to Daavle, Meeg sped like a frightened spider through the ship into the locker room. He began to throw on a rubberized vacuum-suit. Daavle helped him, wondering.

Lumbering like a camel in the heavy suit, Meeg rushed aft to the rear double lock. He picked a long steel fending-gaff from the rack and darted into the chamber. He spoke swiftly as he closed the glassex visor.

"Watch me through the window. When you see me reenter the double lock, give Wisphthal the signal."

He swung the giant lock door shut. Daavle rushed to the window and watched the outer door closely.

He could see the wheel spinning on the outside. As the door swung inward, Daavle could make out the wisps of frozen air sweeping out of the chamber like smoke. Then the slender length of the gaff appeared, followed by Meeg.

He clambered over the sill laboriously and teetered along the narrow fin of the tail, balancing and bracing himself with the gaff. Suddenly the

ship vibrated again with a convulsive shudder, and Meeg almost slipped. Daavle heard the phone click. He picked up the transmitter.

"Yes?" he cried.

"Tell him to hurry!" shouted Wisphthal. "Did you feel that? They're pulling into range."

"He's doing his best," answered Daavle curtly. He flung down the set and watched Meeg.

The spidery mechanic was halfway down the tail, carefully balancing between the two upper tubes, one of which was still discharging a scorching flame. The two lower tubes were also firing away, and Daavle suddenly thought how hot that metal must be. He held his breath as Meeg reached the very end of the tail, reached cautiously around and inserted the end of the gaff into the black mouth of the clogged vent.

The ship shook abruptly with more violent shock, and Daavle could hear the faint squeal of shearing steel plates above his head. The phone clicked again, but he disregarded it. The little Mercurian was clinging precariously to the edge of the vent, the whole of the gaff and half of one arm thrust up into the shaft. He was probing and scraping vigorously.

Another discharge shook the space ship with a rattling bang. A second followed immediately, and then a third.

Daavle could see that Meeg was in extreme danger of falling near the three flaming vents. He tried to yell to him, pounded on the heavy port. Meeg raised his head, withdrew the gaff from the vent mouth and began to step up the slippery incline to the lock door.

CHAPTER IV

First Payment

THE vibrating ship made his progress agonizing. As he approached, Daavle could see his distorted brown face through the glassex visor. The jerky motion was throwing him off his footing. He braced the butt of the gaff against the overlapped steel plates.

He slipped suddenly, set the gaff

again. The space ship strained terribly and Daavle saw that Meeg had fallen to his knees. His hands gripped desperately as the shuddering of the ship thrust the gaff about. And then, to his horror, Daavle saw the sharp hook of the gaff catch gently on Meeg's shoulder. Another shudder of the space ship and it was loose, but there was a small patch of fabric clinging to it.

With horrified fascination, the Venusian watched. He saw the thin white mist of oxygen pour from the shoulder of Meeg's space suit. Then the Mercurian stopped his motion abruptly, dropping the pole. He turned his head toward the port, showing an agonized face, mouth wide open in a grin of suffocation. His hands clutched for his neck. A shake of the space ship threw him clear. He floated alongside, writhing like a snake.

Daavle stared until the figure hung limp. Then the rattle of the phone recalled him. He picked up the transmitter and shouted.

"Go ahead!"

Flame suddenly belched from the vent mouth. As the ship picked up speed, the figure floating alongside was swiftly left astern. Daavle watched it disappear in the blackness.

The acceleration of the ship made his forward progress difficult. He entered the pilot's room. The shiver of the vibro-discharges behind them continued.

"We'll be lucky if we're not hit before we can pull away," Wisphthal said, turning to Daavle. "Where's Meeg?"

"Overboard!" Briefly Daavle told what had happened. "He got it the way he didn't want," the Martian said softly. "After all, there isn't much difference between a torn suit in space and a suffocation chamber on Mercury."

Suddenly the Venusian rushed aft to the Hygo-chamber, violently sick.

The Martian had his eye to the telescope, his black leather face impassive, when Daavle returned to the observation room.

"Where are you headed for?" Daavle asked.

"Titan," was the answer. "There's a

small outpost settlement of pioneers and farmers, out of communication with the centers. We'll be able to rest there and make plans."

DAAVLE nodded nervously. Wisphthal kept his eyes glued to the telescope. The hours passed as the ship sped on. Once Daavle turned on the micro-wave pickup, but cut it off abruptly when he heard the announcement of their flight and the pursuit.

"They're still following us," he blurted out.

"Didn't you think they would?" came the calm response?"

"Yes. But how long will they follow?"

"I don't know. Probably to the outer reaches of the Solar System. We'll have to go beyond that for awhile. But this ship is provisioned to last two men for fifteen years."

"Where could we go? There's nothing but years of space ahead. Centuries of travel before we reach the nearest star. If we have to leave the Solar System, we're lost."

"Now please, my dear fellow," purred the Martian. "You must take hold of yourself. Nothing could be worse than the death sentences that await us, and at least we've avoided that. Jupiter is the outermost inhabited planet, so they can't send word ahead to cut us off. We'll rest up at Titan. Head out into the void to throw off pursuit, and then make a large circle to bring us back at some other point. Don't worry until we get that far."

He leaned forward and peered again through the lens. Daavle kicked at the tumbled rubbish that cluttered the floor. He snapped on the pickup, only to learn that their probable course was being followed closely. He could hear the reports from the leading pursuit ship which had them under observation.

He began to shake with fever. He threw himself on an emergency bunk in the control room, where he thrashed and fretted restlessly. At last he slept. Under the calm guidance of Wisphthal, the ship sped on.

He was awakened by the exhausted Wisphthal who shook him vigorously.

"We're here. Wake up, we're here." When the Venusian at last opened his eyes and started up, Wisphthal laid a quiet hand on his shoulder. "Take it easy," he said. "We've arrived. You slept almost thirty hours."

The Venusian rushed to the observation window and looked out anxiously. The ship was less than a thousand feet above the rocky, crazy terrain of Titan. The vari-colored irregular scarps looked like a lurid imitation of the South Dakota Bad Lands.

Wisphthal reseated himself at the control board.

"We'll cruise along," he said. "This moon is sparsely populated, but we should find someone before long. We'll pretend we're explorers come down to restock on food."

They searched for less than an hour. Then the Venusian exclaimed and pointed. Below, a little to the north, a wisp of smoke arose from the ground. Wisphthal veered the ship around and sailed slowly toward the beacon.

Suddenly he howled in surprise. Daavle gaped. The smoke was now off the starboard bow, slightly to the northeast.

The course was changed again, and this time both men watched the fluttering wisp of blue-gray. It suddenly disappeared. They looked anxiously across the landscape and spied the wisp, gently rising due west. Wisphthal peered intently.

"Watch, Venusian. Even the landscape is changing!"

IT was true. The jagged formations had been too erratic for them to

notice at first. But closer observation showed that the formations below them were suddenly changing contours.

They let the ship edge forward and stood gasping at the observation window. It was insane. Eventually, when the novelty wore off, it became amusing.

"This certainly is a land where you don't know whether you're coming or going," smiled Wisphthal.

Daavle laughed. The thread of smoke was fluttering directly below. The Martian turned the ship to a small circular course above the spot. They looked at each other in surprise.

"This must be it," said Daavle.

His companion nodded and started to take the ship down. They kept their eyes on the smoke. Gradually a small settlement rose up from the camouflage of the rocky background—a tiny compound, flanked by squat little buildings.

A Venusian saw the ship. Waving excitedly, he watched them bring it down a few hundred feet from the camp.

"Explorers!" called Wisphthal as he stepped to the ground. "We're here for some hunting."

"Welcome," said the Venusian. "And especially to you, fellow-countryman. 'I haven't spoken to a person in seven months. What brings explorers to Titan?'"

"Food, primarily," explained Wisphthal as they followed their host to the compound. "We must stock up."

"Well, I haven't much on hand myself. But you have the whole countryside to hunt."

[Turn page]



"And that reminds me," interrupted Daavle. "What's the matter with this country? Why don't things stay put?"

"Oh, did you have much trouble?"

"We certainly did," answered Wisphthal grimly.

"Well, you'll get used to it after awhile. "It's a matter of atmospheric jets. There are huge gas deposits that blow off periodically all over the country. The mixtures have peculiar refractive indices, like huge lenses suddenly interposed—or prisms."

HE showed them through his house and then the various storehouses of the clearing. "My name's Noord," he said.

They introduced themselves and bowed politely. As they examined the complicated machinery Wisphthal asked curiously.

"What work are you doing here?"

"Mining," said Noord. "There is a rich pitch-blende deposit here. I have a refining setup in the laboratory there." He pointed to a small building. "I've taken thirty-seven grams of radium chloride already!"

"A fortune!" whispered Daavle.

"Yes," grinned Noord. "But not so much against thirteen solitary years in this spot. There isn't a soul around. Don't know anyone. Well, I suppose you'll be wanting to do some hunting?"

They had their L-pistols in their belts. Noord brought out three pair of heavy-cleated climbing shoes and heavy canvas jackets. They donned their equipment and followed him out into the rocky terrain that flanked the clearing on all sides.

"Nothing larger than hill bear in the line of game and a kind of cat that looks like Venusian seal," Noord said. "These shoes are made of cat hide. But you get used to the meat."

Noord stopped sharply and laid a hand on their shoulders, then pointed forward. In the distance they could see a small lumbering shape scratching away at a rocky scarp. The scene ahead shifted, and the two men followed Noord's switched gaze to the left, where they could see the animal, still grubbing.

"How did you know it would be there?" asked the Martian.

Noord laughed. "You get to learn. I suppose it's a kind of instinct . . . Oh, don't shoot!" He struck down Daavle's arms. "That's a sulphate life form." He apologized suddenly. "None of these animals has been named yet, so I can't tell you what to call them."

"Sulphate?" inquired Wisphthal. The scientist in him was coming to the fore.

"Well, yes. You see this fellow is an old friend of mine. It's difficult to explain, but each of the jets has a different constituency. They're all so ancient that they've controlled evolutionary development in their area. This one happens to be sulphur dioxide. Consequently a sulphur-using life form has grown up around it." He kicked a clump of yellowish shrub that looked like amorphous sulphur. "This is typical."

"What would happen if one life form visited another jet?" inquired Daavle.

"Why, it would die, of course," answered Noord. "But they never move out of their sphere. That's why that fellow over there is an old friend of mine. I've seen him in this territory, chewing on sulphur, for years. And by the way, these jets make traveling pretty dangerous. Some of them are poisonous to oxygen users. Of course, Daavle here and myself would be fairly safe. We can hold our breath for half hour intervals and manage to get out of dangerous sections if we ever stumble in." He pointed to the left. "There's an oxygen jet over there. That's where we'll do our hunting."

They stumbled along the crumbling, desiccated rock, marveling at Noord's strength and skill. Years of traversing that territory had given him a deftness of stride and a skilful balance that was wonderful. The light gravity of Titan, less than half that of the Earth, made balance even more difficult for the two newcomers.

Noord stopped them and peered forward once more. Then he motioned them on. As they crossed a narrow gully and began to climb the slope on the far side, the men were conscious of an exhilarated feeling.

"You get it?" smiled Noord. "We're inside the jet's sphere of influence.

You'll have to be very quick. The animal forms move with lightning rapidity. This jet has produced a tremendous metabolism rate. Some of the forms go through an entire life cycle in five minutes."

CHAPTER V

Final Payment

UP the slope they worked their way for a short distance. Daavle called Noord's attention to a small animal streaking along from rock to rock. It was hairless, the size of a raccoon.

Noord shook his head. "Too far away. It would be rotten by the time you could pick it up."

"What?" exclaimed Wisphthal.

"Why, yes," said Noord. "I told you about the rapid metabolism. The same goes for decay bacilli." He pulled out a small cylinder and some transparent rubberized cloth. "You have the same equipment in your pockets. The cylinder contains argon under pressure. When you shoot something, get it into a sac and fill it with argon in less than thirty seconds. The gas inhibits the decay." He grinned expansively. "This is really bagging game."

They heard a clatter up above. Fragments of stone tumbled from the peak. Noord froze.

"Don't move," he said.

As they stood motionless, they could see some animal, moving too quickly for vision to follow, tumbling down the mountain side. It whizzed to within fifty feet of them and paused for a split second. It was the size of a puma, with short, heavy legs and a seal-like head.

It darted away, and without moving, Noord hissed through his teeth.

"Can't see us if we don't move. It's conditioned to attack moving objects."

Slowly he slipped out his L-pistol. Then he made a quick motion. The creature whizzed down at him, paused in perplexity as Noord ceased moving. Another quick movement and the cat raced forward, to bring up with a jolt when the hand stopped. One more gesture had the cat within ten feet. As

it paused, Noord fired.

He ran forward and deftly shoved the creature in the mouth of the bag, zipped it tight, poured in a flood of gas from the cylinder. He laughed back over his shoulder.

"You really have to learn hunting all over again up here."

Then he heaved the sac over his shoulder and clipped it to his jacket.

The two outlaws insisted on remaining until each had bagged a cat. Noord was patient and coached each man painstakingly. It was hours before they could catch the precise moment to fire. Each had killed several cats before they could get one into an argon-filled bag in less than thirty seconds.

Once, as Daavle was pumping his sac, the gas gave out. He turned to snatch Noord's cylinder and dropped animal and bag in the excitement. By the time he had picked up his equipment, the cat was no more than bleached white bones lying on the gravel.

Wisphthal decided to take one last animal, discovered at the crucial moment that his L-gun was exhausted. He was forced to freeze for ten agonized seconds, nose to nose with a mountain cat, before the creature flashed away up the hillside.

THEY trudged back to the clearing at last, marveling at Noord's sure instinct as he picked his way delicately through the shifting panorama. They went immediately to the kitchen, where they dumped their animals out. The relative lack of oxygen there would delay decay until the animals were skinned and salted.

They worked enthusiastically at the skinning. Not until they heard the first hollow echo of a rocket discharge did they realize how the time had flown. Noord lifted his head excitedly.

"The second ship in two years—and all in the same day," he blurted. He ran outside to peer into the skies.

"So soon?" growled Daavle desperately. Wisphthal shook his head angrily. "They'll spot the ship," muttered Daavle. "They'll be here in a few hours. We've got to do something . . . I can't go on with this ever-

lasting running. Lord, I've had enough!" He paced the floor feverishly. Then he stopped. "Listen, would you care if I dropped out of this?"

Wisphthal looked at him blankly. Then shook his head. Daavle was at the door, L-pistol in hand. He raised it, aimed carefully and fired. There was a choking cry, and the thud of a body on the ground. Daavle rushed out and dragged the body of his fellow-countryman back into the kitchen. Wisphthal looked on in horror.

Daavle stripped the clothes from Noord's body and began putting them on.

"I want you to tie me up. Take his body and dump it from the ship when you get away. When they come to investigate, I'll tell them you and Daavle tied me up and escaped. I'll go on living here for awhile. He had thirty-seven grams of radium. I'll split it with you."

Wisphthal nodded. Together they carried the body to the space ship. As they rushed back to the compound, Daavle elaborated his plan. But the roar of the rockets grew louder—heavy drones that bespoke a small fleet.

"We've got to work fast," barked Daavle, "or you'll never get out in time. They'll be here in two or three hours—or longer if the mirages fool them. I can send them off on a false lead. That will stall them while you escape."

In a lead-lined cabinet they found a metal box. They pried it open to discover a luminescent white powder.

"Radium chloride," snapped the Martian. "I couldn't miss it. Quick now."

He hunted around for another container, and at last, in desperation, ripped one of the lead plates down and quickly beat it into a hollow tray. They divided the powder as closely as they could judge and Wisphthal ran with it to the ship.

HE darted back to the motor room and placed it on the gimbals that were used to protect delicate apparatus. Then he tore back to the house and found Daavle hunting about vainly.

"Rope, I can't find any rope." He

pounced on the cat hide. "Here, cut it into strips."

They worked quickly, cutting the heavy green hide into long strips. Daavle settled against a heavy post and the Martian began to bind him.

"No one will ever suspect," said Daavle. "He said he didn't know a soul. Anyway, you can't tell one Venusian from another . . . But you've got to make it look real. Make it a tight job. Don't worry about me. They'll be here to untie me. If they wonder why I'm not shot, I'll say you wanted to give me a break for the food I gave you."

Wisphthal grunted and cut longer strips of the fresh limp leather. He bound Daavle from the waist to the neck, coiling and tightening loop after loop.

"All right," Daavle croaked, the hide tight against his throat. "Go on, get the hell out of here."

Wisphthal smiled grimly.

"Well . . . good luck, fella," he said shortly.

Then he dashed out of the kitchen, his plump black legs twinkling. The roar of the searching ships thundered ominously in the distance. But he rushed to the laboratory and snatched up the rest of the radium salt.

He ran to the ship and deposited the precious element on the rear gimbals. Kicking Noord's body out of the way, he slammed shut the double lock doors and dashed to the controls. He snapped over the gravity screen lever as the ship lifted into the air, he saw the flashes of the pursuing ships far to the south, just above the horizon. That last trip for the radium had delayed him a little too long.

He fired the four rockets simultaneously. The ship surged forward violently. It zoomed out into space. He could feel the convulsive shakes as the ships behind sighted him and opened fire. He accelerated desperately, pointing a course toward the outer reaches of the Solar System. Watching the pursuit behind, he cursed the radium that had almost brought about his capture.

He smiled grimly to himself as he realized that he was pulling away. He set the automatic controls and then lay

down on the bunk. It had been a hard day, and a lot of sleep was what he needed. Twelve hours would carry him well out near the Plutonian orbit. Later he could sneak back into the system. With thirty-seven grams of radium, life would be a cinch. He composed himself for sleep.

FIVE hours after the pursuit ships first sighted the runaway vessel, they returned and descended to investigate the little clearing. The command ship came to rest on the small field. The second officer with a small

entire upper body was crushed by the thongs that twisted it to the post.

"Those outlaws must be fiends!"

"They tied him up with fresh rawhide," explained the officer, turning away from the hideous figure. "It contracted as it dried out. Poor fellow, he must have been strangled by inches."

They stared in horrified fascination.

"Well," barked the officer. "Let's cut him loose and bury him. We've still got to get those outlaws!"

But Wisphthal was far beyond capture. He took his sights gleefully.

No ship would ever follow him this

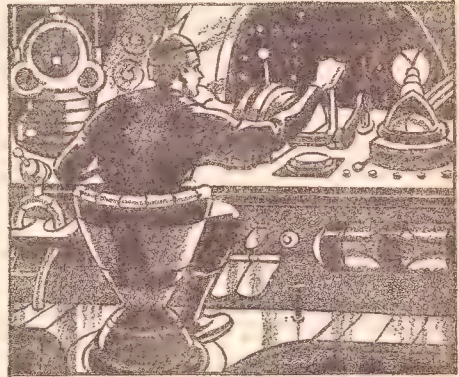
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squad left the ship to inspect the grounds.

They advanced slowly, guns poised until they were in the center of the clearing. The officer called out.

"Hullo. Anyone here?" There was no answer.

The squad split up and began to examine the buildings. Then there was a sudden cry. They rushed to a small annex alongside the main house. It was rank with the stench of rotting meat. The officer pushed through the circle of men.

Fastened to a pillar was a Venusian. Eyes popping, tongue protruding, the

far into space. He was passing Pluto, headed out into the blank vastness of space. Noord's body lay far behind. Everything was shipshape.

Now he should start making a vast circle to swing over into the Solar system again. He clicked up the charging lever for the port vents, was startled. He snapped the lever up and down rapidly, waiting for the tubes to fire. They remained cold.

Was something wrong with the ignition? In a sudden panic he rushed aft to the motor room, flung open the door and darted in. A delicate film of white powder covered the floor—ra-

dium chloride—spilled!

Like the knell of doom, certain words drummed in Wisphthal's ears.

"The alpha, beta and gamma radiations of radioactive substances are fatal to the photo-electric mechanism that governs the proper mixture of plosine and oxygen for rocket discharge . . ."

He stumbled to the observation room and gazed at the stars that twinkled before him in the blackness. Thoughts hammered in his head—Headed out into space—Centuries to reach the nearest star . . .

He could see thirty years of solitary madness stretch before him. Locked in a space ship with nothing to do, say,

read—

He raised his L-pistol to his temple dazedly and took a deep breath. It seemed ages before he could muster the strength to press the firing stud, and he stiffened to take the searing flash that would give him welcome oblivion. There was a faint click . . . Nothing more.

He realized in an agony of last despair that he had emptied the gun on Titan. An empty gun, and no other on board!

He sagged to the floor in solitary desolation.

And relentlessly the speeding space ship bore deep into the heavens, relentlessly on to Limbo.

COMING NEXT MONTH

ICE OVER AMERICA

A Novelet of Frozen Doom

By RAY CUMMINGS

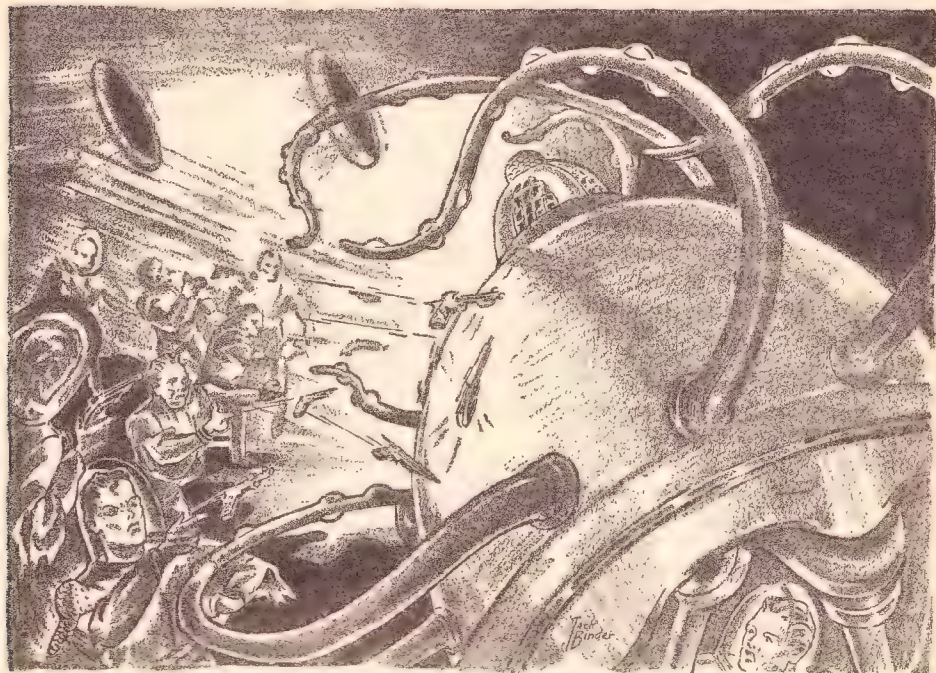
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Man Conquered Science by Inventing Robots That Could Think
—and Now the Robots Planned to Conquer Man!



A ray from the robot snatched their weapons from them

THE MACHINE BRAIN

By DAVID V. REED

Author of: "Where Is Roger Davis?", "Black Death," etc.

THE huge *Southern Star*, flagship of the Interplanetary Luxury Lines, hurtled through space on its way toward Earth. Inside its sleek white shell, the speeding palace rocked with merriment. Its capacity load of twelve hundred passengers were homeward bound from the floral paradise, Exota, a planetoid that had rapidly become a highly favored vacationland.

The magnificent lounge was the scene of a dozen parties as Jeff North

made his way through the gay throngs. An observant person might have noticed traces of tenseness in his carriage, and in his deep-set eyes, a grim foreboding. As he strode rapidly toward the foredeck, the patient, mild look was missing from his tanned face. Reaching the captain's quarters on the bridge, he pressed the entrance buzzer and entered to its response.

Captain Finley was sitting on the edge of his desk, fingers tapping nervously on the metal surface. Expect-

antly he nodded his iron-gray head.

"Hello, North," he said. "I sent for Raleigh too. Official Gram just in from Washington, via Uranus, for both of you." Sliding open a drawer, he handed North the familiar maroon envelope of an Interspacegram. "Isn't often we get these official Grams on this ship."

North's eyes sped over the enclosed message as the buzzer sounded loudly in the silent room. George Raleigh entered, his youthful face laughing and eager. Happily he grinned at both men and accepted the proffered Gram from North. Not a word had been uttered for a full minute.

Suddenly Raleigh exploded, his dark, excitable eyes burning.

"What is this?" Raleigh asked, bewildered. "The robots escaped the Manufactory compound and headed out into space in stolen ships! It's absurd . . . It's positively . . ."

"Never mind that now," answered North. "Washington wants to know whether we think there's any danger."

"Danger?" cried Raleigh. "Don't they realize yet what those robots can do?"

"All right, all right," responded North. The prospect of danger seemed to soothe him. "Take it easy, Raleigh. This was supposed to be our vacation." He turned to Captain Finley. "If you please," North nodded as he switched on the audiovisor.

A pleasant voice answered immediately. "Communications at your service. Robot B-Eighty-five now speaking. Please go ahead."

"B-Eighty-five, take the following Gram," North said. "Secretary of War, Washington. Cannot overemphasize danger of allowing escaped notorious model Y robots an instant's freedom. Urgently beg you to dispatch several military patrol craft to destroy robots on sight. Signed, Geoffrey North and George Raleigh, Dep't. of Science.

"Second Gram: President, Robot Manufactory, Incorporated, New York. Request complete transcript of testimony given in Government Inquiry condemning model Y, including etherphotos of charts, diagrams, etc.,

concerning robot's mechanisms. Would appreciate information on the latest occurrence at your compound. Signed, as above. That is all."

NORTH turned to Raleigh as he switched the audiovisor off.

"Stop twitching." He smiled. "I feel the same way you do, but that's no reason to jump up and down. There's work we can do—the data we have in the bunk, for instance."

Captain Finlay's expression did not wholly conceal his curiosity.

The two men headed for their stateroom. Strains of dance music drifted to them. In the open archway leading to the deck, stood an uncommonly beautiful girl. She was lovely. Long, dark hair swept lazily over her shoulders and her delicate features were aglow with reflected light from her trailing gown of sheer spun-glass. Jeff North took one sly step toward her. Raleigh grabbed him.

"Why, you. . ." he spluttered. "How about the data waiting. . ."

"It'll wait," interrupted North, calmly.

A scant hour later, George Raleigh wormed his way among the couples dancing on the polished floor.

"Stop twitching," North said, the moment he caught sight of his floundering pursuer. He was dancing with the girl.

"Shut up," Raleigh said, his voice electric. "The answers just came. The Manufactory says the escape happened two months ago!"

North's manner changed instantly.

"Sorry," he murmured to the girl, disengaging himself. "This is urgent."

Inside the stateroom, Raleigh let his simmering anger boil over.

"Two months!" he burst out. "Two months in which the Manufactory wanted to avoid adverse publicity and hush the whole thing up! And now that Washington can't find a trace of those robots, they suddenly turn curious and decided to ask us whether it's worth bothering any more. They break up the only vacation we've had in two years with a mysterious message and ask us to hurry home. Two weeks later, they let out a cautious

peep about an escape—an escape that was six weeks old when they first grammed us!”

“When you’re through,” North said, studying a mass of papers spread before him, “please whistle.” He regarded his raging friend. “Sit down and listen to this. The Manufactory says the robots got out of hand by covering up the control photo-electric cell. What do you think of that?”

“Nothing,” Raleigh said, “because I don’t know what you’re talking about.”

“Let me revive a few memories for you. Remember, the robots are run by a broadcast of radio waves which are converted into current? And that current keeps their motors running. Well, in the center of their trunks, they had a large cell which could be activated by a blue light of special intensity. If you hit the cell with the light, it caused a box of soft iron to move up and completely enclosed the radio receiver. That shut out the broadcast and stopped the robot. They had that safety device only on the dangerous ones—the Y’s. In spite of that, over a period of a few weeks, the model Y’s killed dozens of people before the Inquiry. . . .” North broke off as their audiovisor bell sounded.

“Saved,” Raleigh sighed, getting up to answer it, “by the bell.”

Captain Finley appeared on the audiovisor screen.

“Raleigh, will you and North come up to Control Cabin Two immediately?” Finley was struggling to keep his voice level. “We’ve found your robots—or rather, they’ve found us!”

Without waiting for a reply, the captain switched off.

North and Raleigh leaped for the door!

* * * * *

“There” — Captain Finley pointed through the amberglass—“it is!”

Not far ahead loomed the violet, phosphorescent hull of a small space ship.

“How do you know it’s the robots?” North asked, wondering at Finley’s excitement. The phosphorescence of the ship ahead meant it had been heat-proofed, and outside of military ships,

there were few space vessels that were allowed to assume the violet armor.

CAPTAIN FINLEY’S hands trembled as he produced the official registry of space ships. He spoke as he turned the pages.

“Twenty minutes after you left, Observation reported it. Five minutes later, Controls called — claimed we were being swung off our course at an eight-six degree angle. And we are!” He pointed to photographs and diagrams of a ship in the registry. “Here it is. That ship ahead is registered under the Robot Manufactory banner!”

“It’s one of the stolen boats!” Raleigh cried.

The captain continued.

“We’re faster than that ship. We’ve overtaken it and passed it, but the minute we get out ahead it holds us back. We tried to drop behind—and it pulled us! We can’t do anything but go back and forth in a straight line, and we’re going where that ship wants to take us!”

North’s cool gray eyes glinted.

“Captain Finley,” North spoke rapidly, “call Communications, quickly!”

Finley switched the audiovisor on. Instead of the usual robot answer, an unbroken, almost angry, silence prevailed. Again Finley pressed the switch.

“You’re wasting your time,” North said slowly. “I think your robot communications system is out. Did you send any distress signals?”

The captain’s voice came as if from a distance. “No,” he said, turning to an officer near him. “Mr. Morgan, run up to Communications. See what’s happened there.”

North peered ahead, gazing at the glowing ship that moved so darkly, so expertly, seemingly oblivious of what it was doing. To try breaking from it again, North knew was futile. And it might result in alarming the passengers. The only thing was to keep going, waiting for a chance.

The official audiovisor piped. First Mate Morgan appeared on the screen.

“Calling from Observation,” Morgan reported. “Impossible from Com-

munications. Everything there has been destroyed. The robots are out of commission. Can't make out what did it. I've started the repairs, but it looks like a week's job. That is all."

When Morgan finished, Captain Finley came to life. "A week!" he shouted. "We're due in New York in a week. Now we can't even call for help before then."

"I don't see what kind of help we can get," North said softly. "We are being led by a magnetic ray that is superbly balanced to hold us, but not to tear us apart. What can military magnetic guns do to it?" He mused half aloud. "That robot ship in some way got the Communications robots to destroy our system. It would be easy enough if someone shot a powerful current through them."

"But how?" groaned Captain Finley. "And why?"

"What these robots have done is only an indication of what more they can do," responded North. "You must be familiar with the details of the Government Inquiry at which Raleigh and I worked with the prosecution?"

"I know very little," Finley admitted. "These pleasure boats are like desert planets. Nobody aboard ever hears anything that's going on outside."

"One thing is certain," Raleigh interposed. "These robots aren't taking us just for the ride. We're going to wind up someplace where the robots can have a good look at us—as a start."

Finley looked steadily at Raleigh, turning uneasily in his chair.

"What do you mean—look at us?" Finley demanded. Raleigh shot North a hesitant look. "You can speak freely before the crew."

"Well," Raleigh said, "it's all bound up with the history of this case. We've come a long way from the early robots like model C, where you could ask for the history of an obscure office worker and get a complete answer in a moment. Those C's and others were huge memory machines, filing systems, stationary mechanisms which could hear and speak.

"Later, the Manufactory made models with rudimentary eyes of

photo-electric cells. Some moved on wheels and treads. Others had arms or tentacles. Their inner machinery grew fantastically in complexity. We've used them on space liners, and in innumerable industries. But the model Y's—they've been at work in every scientific laboratory in the world. That's only part of the danger—what they know."

"What danger is there in that?" Finley demanded.

JEFF NORTH took up the question. "The danger lies not so much in what they know—but because of what other things they don't know." He paused, taking a breath. "I see you don't understand me. Let's take the old-fashioned adding robot as an example. You could give it thousands of numerals and demand an answer, whether in addition or multiplication, and the machine had to give you an answer.

"Suppose you made those units infinitely more complex, as the Manufactory people did, and you ran them into tremendous categories. You could then determine, for instance, that Chlorophyl A combined with carbon dioxide, under the influence of light, would react as Chlorophyl B or formaldehyde. That's only a rough idea. Actually, as we found while gathering evidence for the Inquiry, the robots could handle almost anything in their categories, and they could even synthesize theoretical matter. Professor Fielding was killed by a Y-robot with a gas that no one had ever heard him mention. When we analyzed the robot, we found the formula present in unrelated parts that came from many men. The robots did the rest."

"Why should they want to kill?" the Captain interrupted. "You make them sound as if they can think."

"They can—almost," North said. "But scientifically speaking, they don't want to kill. It began with the Lenox Y, constructed especially for the Lenox Physiology Laboratories, to perform simple dissections at first and then learn more. That Y-robot was fifteen feet high, weighing half a ton.

It had an eye in each of its three tentacles and in each of its four steel legs. These were the first to kill. Why?

"We made an intense study of them. The results were distinctly unnerving. Their records of complicated biological or chemical facts concerning human life were invariably blurred! They could not digest it! Just as the adding robot strived to get the final answer, so did the Lenox Y's! But how could they get an answer unknown even to their human masters? What is the answer to the riddle of life? That's what the Lenox robots wanted to get!"

North paused a moment to light a slender Venusian cigarette, then continued.

"Several times the Lenox robots picked up men, but each time a blue ray stopped them. One day they acted too quickly, and before they were stopped they had killed four men—but not for the sake of killing. They had experimented, in the manner of their masters. They were after the answer! They were sent to the Manufactory and hell really broke loose there. We found that in the process of overhauling, their speaking mechanisms had been allowed to go full blast, and every open robot there got what the Lenox Y's had—question and no answers.

"It was like the spread of some mechanical fever. Every robot that could act on the information did so, all of them experimenting in their own specialized way. And as the killings mounted, the Manufactory called in all the Y's. Not knowing better as yet, the company allowed the open overhauling to go on, and the fever became worse."

North ground out his cigarette, then went on.

"The last crowning touch was ironical. Because of their great cost, the robots were taught to avoid self-destruction. Every so often, a model Y would 'see' one of its own number destroyed and go completely wild. They were being stopped from getting the answer. They had to get away. No fear, no emotion, nothing—there

really wasn't any will, couldn't be, because they were machines. As long as one robot was active, it could turn on the others, and in this day and age where we use robots so much, there was sure to be one functioning. And what if that one had the fever?"

NORTH paused.

"One day they broke out and killed forty people. Police ripped their insides apart with magnetic rays. Then came the Inquiry and all this came to light. The Court condemned model Y, every variation of it, and recalled all of them. With the Inquiry over, Raleigh and I went to Exota for a vacation. But it seems now that when all adaptations of model Y got together, they worked out a better escape, without the aid of a single human being.

"That's the most horrible part of it. The Manufactory grammed us that the robots took along others, and lots of raw material, as well as their own broadcasting station. . . ." North stopped. The official audiovisor was piping.

First Mate Morgan appeared on the screen.

"Captain Finley, the passengers have begun to notice we're off our course. What's the official excuse?"

Finley swore under his breath, the first words he had uttered in minutes. It seemed to relieve him.

"Post a notice," Finley ordered. "Say there's a comet warning, or a meteor shower or any damned thing you like. Keep the passengers busy, somehow. That's all."

The captain arose. "God," he muttered, "we'll have to wait until we pass close enough to some inhabited planet or way station to get a message out." His face flushed darkly, his fists were clenched. "Twelve hundred souls aboard—kidnaped by robots! Where is it going to end? Where?"

He was shouting now. North and Raleigh sat by, powerless to help. Slowly, the captain's fruitless anger subsided, and brokenly, he went to the amberglass window and looked out. . .

Three weeks passed, slow weeks that saw each flickering hope die. The

Southern Star had repaired its communications system, manned it with men, but uncannily the liner had been led zigzagging through space so that it never had a chance to speak to the outside Universe. Now and then their receivers picked up interplanetary alarms sent out for them, but they could not match the powerful transmitters of the planet stations. They remained silent to an anxious Universe.

The great *Southern Star*, which in millions of miles of space travel had been as punctual as a terrestrial trolley, was two weeks overdue. The passengers, mounting rapidly from uneasiness to the verge of panic, were hardly reassured. The liner's officers, lying gallantly, pointed to its violet-glowing companion in space, claiming it to be a military escort.

Captain Finley had long before opened the ship's stores, freely dispensing champagne, staging parties and balls. It could not continue.

ON the twenty-second day of captivity, their instruments determined the presence of a heavenly body of some magnitude. Moments of frenzied activity followed. Captain Finley called on the two men whom he had come to regard with increasing respect and affection.

"North," exclaimed the captain, "there's a large planetoid ahead, and we seem to be slowing down to land on it. But my charts show that there should be nothing at this point in space!"

Raleigh looked up from the telectroscope. "It's a planetoid," he agreed. "Almost invisible, although we're not far from it. I seem to make out habitations on one of its high points."

Jeff North was lost in reverie. Unconsciously he took Raleigh's gesticulating hands and held them still, his lips silently saying, "Stop twitching, damn it." Presently, he spoke aloud.

"Why shouldn't there be a body here in space? Remember how many planets have been discovered, not by observation, but by mathematical configuration. This is evidently a body, which instead of reflecting light, absorbs it. The fact that it is so far off

the beaten path of space travel could explain why it has remained unknown."

"But how could the robots find it?" Finley asked, perspiring heavily.

"You forget," North reminded, "that these robots combine many of the best minds on Earth and the knowledge in them. In its infinite units, is as unlimited in application as there are permutations of those units. They cannot create entirely, but permutations can, in a way, create the new from the old.

"What if the robots have a way of combining resources? They have already heat-proofed a ship, and now they are space-traveling. No one robot could do that. Every one of them is a specialist in something. They must have combined in some way. And if the mathematical and astronomical robots effected a synthesis, as a beginning to which other robots contributed— There's your answer."

"By all the triple-tailed comets of heaven!" Finley exploded. He sat down, stunned.

"There's no reason to worry," Raleigh said in his nervous manner. "It'll be over the minute we land. We've already set up an interference transmitter. We'll broadcast radio waves that'll knock hell out of the robots' motors. Then there's always the hand magnetic guns and the sizzlers, once those robots get out from that ship." He pointed comfortingly to the quartz arsenals of heat ray rifles along the walls.

Captain Finley squared his shoulders, rising to the audiovisor. "Mr. Morgan," he spoke into it, "assemble the crew. We're passing out weapons. See if you can squeeze the passengers into the auditorium. I'm going to make a little speech."

Captain Finley never made that speech. Before he had finished emptying the arsenals, Observation piped the alarm—too late! The dark planet below had suddenly rushed up, its deceptive contours veiling the distance. The liner's fall was so swift that before the stratometer's wild gyration could warn them, the *Southern Star* had dived into the face of the dim

planet. Hundreds of voices screamed in terror, and in its sickening, body-racking halt, the occupants of the great ship were hurled about like dice in a box. . . .

WHEN Jeff North regained consciousness, George Raleigh's anxious face was peering down at him. He was sprawled against one of the walls of the wrecked ship.

"My head," North groaned. "Feels like a broken egg shell."

Raleigh's compressed lips stretched into a semblance of a grin. "You've been out an hour," he said, hardly audible.

The figure of a man in crimson aluminum space armor staggered into the room; normal walking was impossible. Through the amberglass helmet the sweat-streaked face of Captain Finley was visible. Lurching, he made his way to North. He removed the helmet and shut off the oxygen supply.

"Thank God you're safe," Finley declared. His voice shook with emotion. "Lord, what hell! Everything smashed in the Communication cabins—your interference transmitter along with it. There's a gash in the hull. The outside atmosphere is pouring in. Didn't know if it was safe." He pointed mutely to his oxygen valve. "Artificial gravity gone in half the ship. In the auditorium. . . ." He covered his face with his hands.

North struggled to his feet, opening the space armor cabinets. He motioned several men to don the aluminum armor. Silently, he and Raleigh did the same. A rescue party had to be organized. He went to the window. The layered amberglass had withstood the impact of their crash, but it was dark.

Finley answered North's unspoken question. "Whole foresection of the ship is sunken. The ground here seems to be some kind of a viscous soil, like jelly."

Despairing shouts rang through the fallen liner, the blending anguish of hundreds of human voices. Accompanying it came the sounds of metal being torn apart, fierce, grating noises. Only magnetic guns could

have made that sound and all the ship's guns were here in this room! Heavy thuds, increasing in volume as they came nearer, vibrated the structure of the liner. Yet closer it came. The battered men in the room turned their eyes to the doorway.

A low sigh breathed through the room as the first robot stopped at the threshold. It stood at an angle, firmly adhering to the sloping floor. Jeff North and Raleigh gasped. They had never seen such a robot! It was a violet-glowing metal monster, new in design. It stood twenty feet high and was five feet across at its broadest point. Surmounting its mass was a small radio receiver. From its trunk radiated eight long tentacles, like the groping arms of some hideous mechanical octopus, and each of these arms was thickly studded with large photo-electric cell eyes, emitting an unwinking pinkish glare.

Directly under the tentacles, a colorless glass mound protruded from the trunk. Under that the end of a short, hollow nozzle stuck out. It stood balanced on three stumpy, massive legs, jointed in several places. Its tentacles were now moving gracefully as it focused its eyes on the men before it.

At the far end of the room, a handful of the crew were seizing weapons. Before they could be warned against futile onslaughts on the violet armor and the equalizing magnetic emanations, the men fired on the robot!

The air in the room crackled with heat. Instinctively, North called out to those who could to enclose themselves within their space suits. The robot turned majestically to face the attacking men, most of them still clad in their torn, aerated-cloth tunics. It pressed a button on its side. Immediately the hand guns were wrenched from the men. The weapons flew through the room and crashed harmlessly against the robot's heavy frame.

Again the robot pressed a button. From the glass mound in its trunk flashed a kaleidoscopic ray of brilliant colors, followed by a shower of sparks from the hollow nozzle. Instantly the far end of the room was a huge sheet of flame! Slowly, the robot wheeled,

enveloping everything in the path of that ray with fire. The momentary flames died as quickly as they had appeared. The men who had been unprotected by space armor were already cinders—but those enclosed in it were safe. They did not understand why.

Two other robots, similar to the first, appeared in the corridor. They entered and surveyed the half-dozen space-armored men. Their tentacles flashed, sickly pink eyes looking into the amberglass helmets at the human faces. Then again they lashed out with their deadly ray, the rainbow-hued fingers of light shooting up vast sheets of flame.

Despite the armor's insulation, the men felt the heat becoming unbearable. But the alu alloy withstood the attack. The robots paused now, tentacles once more examining.

One of the robots began to raise North to his feet, motioning the others to do the same. Slowly, the survivors of that ordeal by fire arose. Silently they trudged ahead, following the robots out of the room. . . .

THE low concrete building was a circle with a circumference of more than a mile. In the center of that circle, but independent of it, was a smaller, circular building. Both structures rested atop a broad, hard-rocked plateau built on the highest point of this dark planet. A brooding quiet, vast and immutable as the silence of a tomb, lay over everything, broken rarely by a thin, prolonged scream which came from the larger building.

Somewhere in that building, Jeff North stood at a barred window, looking out at the dead, dim landscape, eyes unseeing. The walls of the cell were a bare ten feet high, but to attempt escape over it meant death, as a few had found out. Apart from the undermining horror of waiting, it was safe. The planet's atmosphere and gravity approximated that of Earth.

Near North a figure stirred. It was Captain Finley.

"North," his voice called softly, "today's the day!"

A cold ray of morning light passed

over North's face. His eyes were closing with fatigue, his tall body swayed uncertainly. Again that insane scream split the air, its echoes lingering long after it had died.

"Poor woman," North said, gripping the window bars. "Whom did she lose? Husband? Daughter? And those others—which of them will be dead today, and the day after, and the day after that, until there isn't anyone left? Whose turn today?"

In the semi-darkness, Raleigh laid a comforting hand on North.

"Jeff, it's almost time. Listen."

The noises of waking life were multiplying now. A dirgelike moaning that continued all day until the last human would fall into a broken slumber, had begun. Swiftly over the horizon, three tiny suns rose, bringing light. Other sounds were audible, steel feet marching. The moaning grew in intensity. Outside the cell, robots mounted on wheels were gliding swiftly along the corridors, moving large, cage-like boxes before them. The endless terror of the day was upon them. Eight days like it had gone before.

North was completely in command of himself again. The anticipation of danger was a tonic to him.

"Space armor on," North clipped. "It's the only thing that's saved us so far. They're keeping us to experiment with later."

Hastily the men donned their armor; Raleigh, Finley, Morgan, and two men from the crew, Waters and Brent.

"The food will be here any minute now," North reminded.

The cages were on their way back. The men knew it from the pitiful cries that welled up, the hoarse farewells. The cages rode past, filled with humans. A priest was intoning a prayer.

"Again the human guinea pigs," came Raleigh's voice, choked with compassion. "Taken as specimens to be dissected, murdered by a machine created by man." He caught his breath sharply.

The clanking sound of a caterpillar tread came to him. Immediately, North motioned everyone to a pre-

arranged position.

A tall robot, an old, familiar model K, tread-mounted, rode up to the cell. It carried a large receptacle filled with food taken from the captured liner. The K was harmless, a menial taken along by the uncontrollable Y's. A small light gleamed from its trunk. A photo-electric cell opened the door and the robot rode in. The door closed firmly behind it. One of its three arms supported the receptacle; the other two hovered in mid-air, watchful.

"Now!" cried North.

SUDDENLY, as Waters took the food, Raleigh slid to one side, his eyes swiftly examining the back of the robot. Unmindful of the peril, he reached out a hand and touched a button, the one that activated its auditory mechanism. The robot saw him, started to turn.

"Stop!" said North. The robot stopped. "Face right!" The robot turned back. The K had not forgotten the lessons of obedience. North turned on the speech gears. "Your number?"

"K-71." A man's cultured voice had answered.

"What are the duties of K-71?"

"General aid." The answer came.

"Has K-71 the education to recognize a radio transmitter?"

"It has."

"K-71 will bring to this cell a radio transmitter, immediately."

North turned off both speech and auditory mechanisms, his face glistening with perspiration. There were scores of questions he had wanted to ask, but he could not take the time. He had to risk it. Obediently, the robot turned, opened the door, and rolled away.

"You were right," Raleigh declared. "We've got a chance!"

Long, anguishing moments passed slowly. The solidity of time weighed down crushingly on the prisoners in the cell, each second a shackle. They despaired. And then, tranquilly, the robot came back, its three arms encumbered with the transmitter. Feverishly, North set up the transmitter

while the robot waited for further orders.

After a time, North signaled that he was ready. In spite of the need for haste, all hesitated. Here would begin the most daring part of their plan. It would work only by an oversight on the part of the robots. They were going to draw the necessary power from the robot, from the radio that was his life-blood.

Holding the wires in his hands, North addressed the robot. "K-71, lift me to your receiver."

The robot raised him high in air. North worked feverishly, the others reading in the engraved frown on his forehead the progress he was making. Suddenly they saw consternation light his dark gray eyes. In that instant North jumped down. He had seen the unexpected loom, realized it too late!

"I've set off an alarm," North hissed. "The Y's will be here any minute. We haven't enough oxygen to stay in the armor if they attack. Got to get out of here!"

"K-71," Raleigh shouted, "open the door!"

Unquestioning, the robot slid the door back. Running awkwardly in their space armor, the men sped down the corridor as sounds of pursuit multiplied behind them.

A tiny light flicked on, throwing up threatening shadows in the corner of a vast room where five men stood close together. Waters was dead. They could still see him throw himself under the robots' steel legs, disorganizing them long enough for his comrades to find safety in an open door not far away. They were safe for the time being.

The light had fallen on several immense casks, marked plainly to show they were filled with rubber. Nearby were crates of amberglass, copper, great boxes filled with chemicals. The full amount of the supplies there, including metals, fuels, and machinery, was beyond calculation.

"Lord!" came North's muffled voice. "We've stumbled on their warehouse! I hadn't dreamed they could take along so much. They have everything they need here, and with robots that come

from every industry, every laboratory, there isn't anything they can't do."

He nodded grimly as he added, "Except think creatively!"

THAT, North knew, must prove their undoing in the end, and before it might be reached, all might be killed. He clenched his gauntleted hand. They had to be stopped, but how? Jeff North knew he had no answer.

"They anticipated something like that interference idea," North had explained to the others. "They equipped themselves with short wave receivers. They sent out a wave so short that it travels in practically a straight line from the point of issuance to each robot, unlike the usual waves which blanket an area that supplies all within it. The wave follows the robot, something like a dog on a leash. We can only get one at a time, and only that by breaking the short wave to it. The only way is to intercept the wave with a conductor of some sort, before it reaches the robot.

"That's what I did accidentally—my alu-malloy gauntlets acted as conductors. The only catch was that I saw it had been rigged up to shoot back an alarm. If we'd got the transmitter working aboard the *Southern Star*, we'd have been safe. They had to use long wave there—too much metal around. And that's why the walls are only ten feet high all through here, and the robots at least fifteen. They take no chances."

So he had learned, but too late.

"Jeff!" Raleigh called. "Listen!"

A door was sliding open in the room adjoining theirs. Raleigh's face was contorted. "They're after us!"

"No," North said, searching the sounds for an explanation. "Something is going on in there."

Other noises were coming from over the wall, the sound of many steel feet marching in and halting. A flood of light poured into the adjacent room, spilling illumination over the wall. Taking advantage of the noise, North clambered atop a large crate and peered down, risking their lives if he were discovered. He had to risk

them. Their lives had been forfeit overlong.

Jeff North's eyes froze him where he stood. There, in an absolutely bare room, stood a score of super Y's, the twenty-foot robots that were the supreme expression of the robot's terrible capabilities. These violet Y's were standing in a circle, motionless, soundless, like some weird, diabolical conference of machines. These were the metal brains that lay behind the tragedy of the *Southern Star*.

A door opened and another robot marched in, taller and broader than the rest. It moved easily on five legs which were fitted with small wheels, now retracted. Its violet metal was colored more intensely than the others; its eyes were more numerous. Two glass mounds came from its trunk. There were three short tubes, unconnected, which North recognized as heat-ray projectors. Here stood the newest and greatest of them all—a master robot!

How many others like this were being made? What chance would mankind have against widespread havoc and destruction before the robots were stopped? These questions thrust themselves frantically into North's numbed brain as he stared down at the grotesque scene.

As if by some signal, all the robots but one left the room to the master robot. That one robot advanced to the master. It reached out a tentacle and switched on the auditory mechanism of the taller robot. Then it pressed its own speech button. From its metal larynx issued a flow of recorded speech.

White-faced, North heard Pascal's Law. "Pressure in Fluids: Pressure applied to an enclosed fluid is transmitted equally in all directions without loss, and acts with equal force on equal surfaces."

THE new master robot was being instructed in physics! The robot was going on and on. Was this how the robots transmitted their specialized knowledge to each other? These little droplets of learning, of information, of thousands of odds and ends,

trickled one on another until they formed a mighty torrent! The robot could store it all in its infinite mind, automatically filed away, to use them as other robots would soon suggest, for there were robots that knew of almost every human activity.

North came down from the crate and told the others the meaning of the voice in the next room. . . .

Hours passed. The hybrid voice, the voice of many men, continued speaking. Once they recognized the slow, measured tones of Professor Freund expounding on a new use of Indium. They listened unwillingly, maddened by their helplessness.

After some time, the robot ceased.

then, when the master robot knew all, the Lenox Y's would come, imparting their deadly questions—and others would switch on its fearsome weapons. There would be more of them . . . more . . . more . . . each the combination of all the robots; each seeking, dissecting, crushing, killing, until they had used up all their supply of humans and raw materials and went marauding through space for more.

Why, thought North, were they sitting there, waiting to be caught? Death from hunger or thirst could outwit them even if the robots failed to find them. There must be a way! Human ingenuity—the creative mind—were they useless?

The Saga of a Martian Midas!

THERE WAS NO PARADISE

By

MANLY WADE

WELLMAN



*One of the Fascinating Complete Scientifiction
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The sound of a robot leaving and another entering came to them. Presently, they heard an outpouring of material on interplanetary travel. The synthesis was being engineered! One robot would follow another until each had emptied itself. And then the master robot would have it all. He would know the stars and their orbits; what happened if fire were applied to flesh, to wood, to glass; the danger of a magnetic gun. Thousands of voices would teach it, and it would learn.

In every particle of a fact it would automatically find relationships where they were to be found. Its knowledge would be filed away, comprehensive, complete to the smallest detail. And

Suddenly he cried out! His eyes had alighted on a crate marked, "Handle With Care—ES Generator." In an instant he was tugging at the crate, opening it. The others looked on wondering.

"George," North called, "cut two chunks of rubber from that pile there, chunks large enough to cover my feet completely. Lay a rug of the stuff over that crate near the wall."

Raleigh asked no questions. With Finley and Morgan helping, the crate was opened, disclosing an electrostatic machine of the highest capacity. Quickly, North set it in motion. From Raleigh he took the two large rubber pads, wrapping them securely around

his feet. Then, holding a small magnetic gun, he approached the machine and brought his gauntleted hand into contact with its copper conductor.

"Don't come near me," North warned. "I've got a tremendous charge of static electricity in me now. If you touch me, it will pass to you and be wasted."

"Jeff!" cried Raleigh, "you're mad. It can't work!"

"All right," North said, "I'm mad." His eyes were shining. "This is our one chance to get out of this. If only there's no alarm beam along the top of this wall."

His face was almost gay with daring as he closed his helmet and opened the oxygen valve, using the last of his precious supply. "Here I go!" his lips said soundlessly as he climbed on the rubber-covered crate.

FROM atop the wall he threw a large nut at the two robots. It fell clearly in view of the smaller, completed robot. The robot turned. Its tentacled eyes saw North. At once its magnificent ray played over North, a halo of flame surrounding him as he kept clambering over the wall. He had to get to the robot, but approaching it might mean death from one sweep of its crushing tentacles. The robot would use them if it had to, for North was no longer a passive specimen. He knew he had to get to the robot before it had time to lift one of those huge metal arms. And he could not risk that drop of ten feet which might throw him off balance for a fatal split second.

North revealed his magnetic gun, turned it on. Instinctively, as North had counted on, the robot pressed its counter magnet, changing its protective shield to a powerful ray of its own. It was as if North had been sucked into a whirlpool by a tremendous eddy. Impelled by the magnetic ray acting on the aluminum armor, North was lifted bodily from his feet, yanked off the wall, and dashed against the robot's trunk. A blinding flash of lightning shot out at the crashing contact as the whole static electric charge ripped into the robot. North lay stunned at its feet, com-

pletely at its mercy.

But it was dead! As dead, paradoxically, as it had ever been. The charge had ripped its internal mercury switches apart, burnt every fine wire in it, destroyed the brain and heart of the machine! It had committed suicide by electrocution!

Perhaps the alarm had gone out! North struggled erect. He had to act quickly. Opening his helmet, he turned to the calm, witnessing master robot.

"Go to the central transmitting station," North commanded. "Allow nothing to stop you. Destroy every piece of radio equipment there!"

North paused and turned on the speech mechanism. How much had this new robot already learned?

"Is this order intelligently dispersed?" North asked. It was the old key question.

The robot was silent. Its new machinery functioned slowly.

At length it answered. "Yes."

"Act on the order!"

The robot wheeled and exited, its steel legs thundering slowly down the corridor. Willing hands hauled Jeff North back over the wall. There the men stood together. Not a word was spoken. Life or death for countless numbers depended on whether the creation of the robots would successfully carry out the orders given it by a human.

The concrete building was filled all at once with the grating sounds of metal moving in mad confusion; treads, wheels, legs, going in a furious din. The adjacent room was the deafening vortex of the pandemonium. A door leading from it to the warehouse was being hammered upon. In a moment, a robot with the necessary light ray would open it. The master robot had had to leave the large building, travel across the rocky ground to the smaller one, pass by innumerable guards. The noise was growing louder and louder. The door was beginning to move. . . .

All at once it stopped. And then it was quiet, just as it had been in early dawn.

Crowds of men were busily repairing the *Southern Star*. Cap-

tain Finley was speaking to North.

"We've enough material here to rebuild everything. And best of all, we can take off from that angle by firing the fore rockets."

From out of the milling crowds nearby, Raleigh and Morgan rushed up.

"Stop twitching," North grinned.

"That colored ray," Raleigh shouted breathlessly, heedless of North's remark. "We've analyzed it! Those robots gave us something there. It's a high-powered ray, something like a Gamma, but what it does is knock off the two outer rings of electrons and smash the nucleus of the oxygen mole-

cule. That makes it the same as a hydrogen molecule—fills the atmosphere with hydrogen. Then the robot shoots his sparks and bang!—fire! Don't you think—"

But Jeff North had already caught sight of the girl with long, dark hair, and delicate, smiling features. His heart beating as wildly as it ever had, he was walking toward her.

"Every man to his pleasure," Captain Finley said, beaming.

"You know," Raleigh said, an indulgent frown on his face, "I wouldn't be surprised if he planned the whole thing just so he could get to see that girl again!"

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OUT OF THE DEPTHS

By H. L. GOLD

Author of "Hero," "The Perfect Murder," etc.

Up From the Bottom of the World Rises a Son of Neptune—and Meets the Giant-Killers!

VISION swiftly returned to Zarz' eyes as the total anesthetic wore off. He had never felt so strange. Breathing was difficult. Some horrible lump congested the space between his ribs, and his gills had to fight for enough oxygen. He rose up. Instead of swimming horizontally, he balanced uneasily upright on his two feet.

"Perfect!" a thought wave reached him through the water. "We have exactly duplicated the little beings who were drowned twenty thousand years ago—even to lungs, nostrils, ears and sound canals, arms, and legs!"

Zarz looked down at the telepath. Cluf, the foremost surgeon of Zarz' huge amphibian race, was sprawled just over the ocean floor, moving his finger-like fins to keep him in one spot. When Zarz looked back, he saw the rock table on which he had lain while being operated on.

All around him hovered the pathetically few survivors of the tribe of under-sea dwellers. Zarz knew them all by name, for there were only a few hundred Malnus in all the seas of Earth. Once they had numbered hundreds of thousands, but that was before the Ice Age had made the planet too frigid for them. Then they had been forced to take to the warm seas, and that, somehow, had inhibited increase of population.



He walked with the utmost caution his cosmic size would allow

"Everything must be accomplished quickly," said Lenj, head of the Scientists and Governors. "Your synthetic lungs will oxygenate your vast body for only a short while. You can spend some days in exploration, but you must return as soon as you experience difficulty in breathing. Then you will be operated on again to give you back your natural form. As you are, you closely resemble the ancient Malnus giants who roamed the Earth and ruled the dinosaurs before the rise of mankind.

"Go first to the South Pole, where the atomic equipment has been placed in readiness for you. Assemble the machinery. Then you will be towed to the North Pole, where you will assemble the atomic machinery for that region. When that task is accomplished, the increasing saline content of the sea that threatens our existence will be effectively diluted by the water from the melted ice caps."

Zarz nodded his great red-crested head obediently.

"And that will make Earth so much warmer," he added, significantly.

He felt a subdued wave of mental laughter. Then Lenj telepathed again.

"You refer to the legend of the Rofubians? Well, the million years they claimed they would return in, is more than over. We Scientists and Governors took that into consideration, of course. We are so helpless out of water, our science not properly operating in air, that we must guard against even remote possibilities. Yes, melting the ice caps will not only dilute the ocean's salt content, but at the same time will increase the temperature of Earth. The Rofubians, if they do come back with their swarm of colonists, will find the planet too hot. But that is merely a secondary consideration. Go now, Zarz, and assemble the atomic equipment."

CLUF, the surgeon, suddenly burst into activity.

"It is the moment," the surgeon stated. "Take a deep breath."

Zarz inhaled. He knew it would be the last breath through gills that he would take for a long time. Instantly Cluf flashed up through the water until he was even with Zarz' head. His facile fins slapped against Zarz' gills. The

plastic material he had held adhered firmly to the scaled flesh. Zarz felt the itch of swift growth there. The next moment Cluf had torn out the plugs in Zarz' nostrils.

The erect sea dweller crouched. With a mighty shove against the ocean floor, he sprang up through the water and swam with incredibly powerful strokes.

The water lost its soft darkness as he approached the surface. It grew faintly blue, then green. The familiar fishes disappeared below, and Zarz saw species he had seen drift down only in death. As he rose higher, his widely dilated eyeballs contracted in the constantly increasing glare until they projected grotesquely from their sockets.

He broke the surface, clear to his waist, and fell back. Painfully the frigid air struck his eyes. He was unable to soften its harsh sensation, for he had no lids.

As he swam toward the glare and sparkle of the Antarctic ice fields, he kept ducking his head into the water. But swimming was a new experience now. When he forgot his synthetic lungs, and instead tried to breathe through his stoppered lungs, he choked. Yet the water soothed his aching eyes. He knew that eventually he would learn to breathe properly.

Before long he touched the sloping shore. He stood up and waded to the brink of the ice field. A mile-high giant rising from the deep—true son of Neptune. There he saw the mighty stack of machinery his people had piled up for him.

Before starting his task, he stood a moment, looking out to sea. The gleaming, brown-scaled bodies of his friends coursed back and forth, waiting for him. He waved at them and set to work, the first of his kind to appear on land in a million years.

Under each enormous, cosmically strong arm, he tucked a small mountain of equipment. Unrolling the vast spool of wire that led from the machinery to the water and beneath the surface, he began walking toward the unknown heart of Antarctica with swift half-mile strides that shook the deep ice. Cracks formed far ahead, splitting with roars into wide and jagged crevasses near his feet. He strode on. . .

By judging the distance he had walked from the ocean, and the position of the known constellations, Zarz estimated that he had reached the center of the Antarctic polar cap. He carefully lowered his burdens and began to assemble the parts.

As it neared completion, it resolved itself into a cyclotron the size of a city block, four girder towers supporting tremendous concave heat radiators, a large chest of raw materials that automatically fed the machine, and sixteen slender towers that surrounded the entire assembly. The last towers cast vibratory rays which Zarz finally adjusted to photo-electric interceptors.

Zarz then touched the giant switch that started the atomic motors. Swiftly he leaped back. Within the moment he felt the air begin to warm.

"One task completed," he declared with satisfaction, and he smiled victoriously up at the dark sky.

As he strode back toward the coast, he knew that the machinery he had assembled would slowly, over a period of months, melt the Antarctic ice cap.

When he reached the ocean, he waved his arms. Immediately the water began to churn, and whalelike bodies swam toward him. He waded out to meet them. When he was up to his armpits, they were swimming alongside. He clutched the red crests that ended in manes at their shoulders and let them tow him northward, unreeling the wire cable as they went.

In a single day they reached the North Pole, where Zarz picked up and assembled the machinery that had been placed there for him. He connected it to the wire beneath the ocean and closed the current. Then his two friends towed him to the northwestern continent.

BEFORE leaving them, he put his head below water. The fluid carried the thought waves between the undersea dwellers.

"The polar ice caps are beginning to melt," Zarz said. "Soon the land area of Earth will be greatly reduced. If the invaders from outer space ever do return, they will be repelled by the heat of the planet. Unable to live here, they will have to look elsewhere for a new

home. Then there will be no danger of their poisoning the air and the oceans with the chlorine they must breathe."

"Get on with your exploration and come back immediately," Smos replied irritably. "There is truth in the legend, of course. The Rofubians did actually visit Earth when our ancestors lived on land, and they did vow to return with an invasion. But your task is simply to insure our survival. The increasing salinity of the oceans is threatening our existence. You have corrected that. If the Rofubians do come back to Earth, the melting will then assume its secondary importance."

Mollified, Zarz said good-by. He stood erect and marched up the continental shelf to the shore. Behind him the dwellers of the lower ocean watched him in silence. When his half-mile strides carried him over the horizon, and even his red-crested head disappeared, they dived deep and swam along the ocean floor toward home.

But Zarz could not forget the Rofubian legend. While underwater, an invasion from outer space had seemed only a remote probability. Now that he could see the Sun and the lush greenness of the planet and the blue of the sky, he could understand why the homeless Rofubians would covet Earth. Nor could he forget how similar the ancient description of the outlanders was to those land dwellers who had been drowned twenty thousand years before, when the ocean had risen up and covered their continent. The Scientists and Governors believed all the land dwellers had died in that catastrophe. But Zarz could not see the reason for that belief. Enough land had been untouched to give any survivors complete sanctuary. Now, granted the opportunity, he was going to explore and see.

Despite the vast length of his strides, Zarz was scrupulously careful to avoid stepping on all visible forms of wild life. At each step he lowered his foot in places clear of the knee-high trees.

"If there are living land dwellers," he mused, "where are they? Perhaps the Scientists and Governors were right, after all—"

Abruptly he halted in astonishment. Eastward, right at the shore of a large

bay, reared a high tower of glittering metal. The lower half, he saw, had been covered with bright plates. The upper half appeared unfinished.

"Land dwellers!" he breathed.

He marched toward the shore, feeling the ground tremble underfoot. When he glanced back, he saw enormous craters where his weight had crushed down the soil. But the tower was what he was anxious to see. Had it been built recently, or was it a relic of land dweller life from before the great drowning?

After a dozen strides, he paused indecisively. This tower was no relic. Land dwellers, clad in balloonlike garments, swarmed busily all over it. And on the bay—

He stared at huge green, red and blue conveyances! Ships of the ancient design of the foe.

"No," he muttered. "It can't be. It is merely a coincidence."

He moved forward anxiously. Grabbing a tiny figure off the tower, he held it close to his eyes. Before he had a chance to inspect it through its totally concealing garment, one of the vividly colored craft swooped off the water and attacked him with shocking bolts of lightning. The shocks tingled, but merely annoyed him. He slowly retreated, swinging his arms. He tried to avoid harming the occupants, but he was forced to bat the craft out of the air, one by one, as they came dangerously close to his unprotected eyes.

He fought regretfully—until he had time to tear the suit off a tiny corpse he ripped out of the wreckage of one conveyance. It was green-skinned, oozing an alien purple blood. . . .

"A Rofubian!" he cried, and the sound blasted like thunder on the air. "The invaders have returned to Earth!"

FURIOUSLY now he attacked the few remaining craft. He smashed them to the ground, trampled them, yanked the terrified little mechanics off the tower, and crushed them all. When he gazed around belligerently, he was alone amid ruins. The craft had all been wrecked, the tower destroyed.

In great excitement he continued striding southward.

"Rofubians," he thought. "They have

returned after a million years, as they threatened. But are there land dwellers on Earth? The Great One help us if there are not! There is no time to transform all of us Malnus to land dwellers, and we would have to create a new science that will work out of the water. If there are little land dwellers, I pray that their science is advanced enough to combat that of the Rofubians! If it is not, or if they no longer exist, the tribe of Malnus will die in chlorinated water."

Once he stooped to pick up a strange little beast and let it wander in bewilderment over the huge plain of his palm. By holding it close to his face, he saw its four legs, the two curving toothlike bones projecting from its skull, the puzzling bag of skin underneath. A cow, although Zarz could not name it.

A buzzing sound puzzled him. Swiftly it grew to a tiny roar. He looked up in alarm and saw a winged aircraft come whizzing toward him. To protect himself, he struck the craft from the air.

Gently he lowered the strange little animal to the ground and watched it move off with tiny ponderousness.

He continued southward. Suddenly he paused. His giant feet were four steps from a settlement of land dwellers! Looking down without moving, almost without breathing, he saw the streets grow black with human beings. All were facing his way. The next moment he was gazing at paths that were bare.

He came closer, walking with the utmost caution his cosmic size would allow. When he bent over and peered closely, he glimpsed something that cringed behind the wall of one dwelling.

Zarz stooped and tenderly caught it in his hand. He raised it to his face. The small figure lay on his palm without moving. He studied the bright yellow floss that grew from its head, the brilliantly colored garment that ended at its knees. With infinite patience he waited until it began to move again. It sat up slowly and stared at his face. His almost telepathic eyes saw the horror on its small features.

"Do not be afraid," he mumbled gen-

tly. "I come as a friend to help you fight the Rofubians."

The tiny creature clapped its hands over its ears and collapsed again. He lowered it to the ground and meticulously walked around the village.

In a short while he passed the deep belt of forest, reached larger towns, and finally cities. But over the horizon he could see darker air, which meant industrialization, and therefore even larger cities. He swiftened his stride southward.

"So many land dwellers!" he marveled. "More than even those on the sunken continent. Surely they can defeat the invaders from outer space!"

Across a river he waded. To the west he saw three lakes and the sparkling air beyond the curve of Earth. At least another lake must lie still further west. But he did not stop to investigate. He veered slightly east and continued marching toward the south. And ever in advance, unknown to him, sped word of his coming.

The air grew dark with smoke, dust, queer smelling chemicals. This was what he wanted, for where mankind's greatest assembly of industries were, there he would also find its greatest scientists. And those were the mites he must address.

Neat patches of tilled ground lay ahead of him. Far to the east he saw the vast breast of the ocean. Down near the equator, between the southwestern and the southeastern continents, was his home. There the first intelligent land dwellers had risen. When the ocean rose up and covered that land, his people had studied with minute care every detail of the science, culture and language of that race. That such small creatures had attained such wisdom constantly amazed the Malnus. How lucky it was, he thought, that the survivors of that catastrophe had managed to reach other lands, after all! Because they had, he could communicate with them in their own language. . . .

AND so he came to the upper waters of the Hudson River.

Cities clustered neatly around the banks of the river. Towns and villages and the wonderfully cultivated squares of land were thick around the cities. But

by walking in the river he could prevent injuring people or toppling their settlements. Besides, even if he left his usual tremendous footprints in the river bed, it would not create problems of filling them.

Tiny craft sped over the water—away from him. Sadly he watched them in their mad attempt to escape. He could easily have overtaken them, destroyed them with a single flick of his mighty hand. But that wasn't what he intended doing.

"Hold!" he cried. "I do not seek to harm you. I come to help you as a friend."

Waves lashed high over the river banks. He saw buildings tremble under the fury of his voice and shake to the ground. Several of the river craft upset and frantic little beings swam away.

"Great One," he whispered, "must they always fear me? Can I not approach without destruction and terror?"

He stooped and trapped a water vehicle in his hands, scooping up a handful of water, on which the craft continued racing. He saw nothing inside, until almost all the water had dripped out through the spaces between his fingers. Then a head lifted furtively over a low wall at the rear and instantly pulled back out of sight.

Zarz put the craft back on the river. It charged to the bank and small figures poured out and ran wildly in all directions.

"They fear me," he muttered in defeat. "Always they fear me. I am helpless."

But he looked down the river and saw it broaden swiftly. More water vehicles were there than where he stood. The buildings were higher, built more closely together. Smoke and dust darkened the air more thickly than he had seen before.

"That is where I must go," he said. "Surely someone there will understand."

For the first time since he had left the ocean, he felt assurance. At each step he raised his foot high and carefully placed it in the water. The tide still swept over the banks, and waves battered the craft, but he was causing

no real damage. When he reached the narrow spans that bridged the river, he easily stepped over them without touching their weak suspensory strands.

Suddenly he looked ahead in alarm. From southwest and southeast, clouds of tiny aircraft sped toward him. Then Zarz laughed admiringly.

"They seek to reach my level. They will talk to me face to face. Marvelous little beings—together we can defeat the invaders. And then, what a world we shall make! There will be enough land left after the ice caps melt. Nothing in any universe will approach it for perfection. The riches of the sea will be traded for the riches of the land. Earth shall become more bountiful than ever!"

The aircraft spread out all around him. Swiftly they raced in circles about his head. But not one hovered for speech!

"Come closer," he invited softly. "Come to rest on my hand and let us talk."

And Zarz held out the enormous plain of his palm as a landing field. The blast of his modulated speech did not arouse consternation. Instead, the aircraft winged straight at his face. He saw puffs of smoke, heard a miniature chattering. Bits of hot metal hit him all over, from his waist to his brow. He did not fear the things, for they bounced off his thick hide. But the zooming and diving vehicles were aiming dangerously close to his eyes.

"Stop!" he cried. "Stop! I do not want to fight you off."

YET he had to protect himself somehow. When he threw up his arm to protect his eyes, he battered a couple of craft to whirling wreckage. He could not see, and a few vehicles managed to get between his arm and his face. Fragments of metal stung him.

Zarz blew gently at the cloud of chattering aircraft. They were blown aside by the tornado of his breath. He blew more strongly, scattered them in all direction. But they fell into formation again, and once more they raced at him.

Blowing furiously ahead, to keep that way open, Zarz ran downstream. Behind him roared the fleet of aircraft, still shooting bits of metal. Despite his

speed, he was careful to leap over the thin spans, to avoid the river craft.

He reached the first real congestion of the city, which lay on his left. A high span, more solidly constructed than those up the river, stretched across the water before him. Swinging his arms to hold off the attacking aircraft, Zarz stood a moment to inspect the scene. He was gazing upon Manhattan and the George Washington Bridge.

Slender towers, almost as high as himself, reared above the smaller, squatter buildings, which sprawled between two rivers. On his right was a cliff, projecting almost straight up from the shore. Craft plied between the densely populated city on his left and the more diffused settlement on his right. Over the eastern river was another city, and beyond that the ocean. Zarz had not dreamed to find so large a settlement of human beings.

An aircraft, enormously larger than any he had seen among his attackers, greater than almost all the river vehicles together, screamed up through the air from the broad, lower part of the river. With smoke and fire blasting from its red wings and tail, it charged venomously toward him.

He stared at the body of water from which it had risen. Red, green and blue space craft covered the bay like a solid blanket! The Rofubians were here before him!

"Men," Zarz cried in horror. "You must listen to me. I am descended from the great reptiles. I live at the bottom of the ocean. But I, too, am of the Earth. I must fight off these invaders from Rofubia, just as you must. Turn on them. Together we can destroy them utterly, prevent them from releasing Earth's chlorine and flooding the atmosphere and the ocean with deadly poison. Help me! Do not help them!"

But the surface of the river grew black with vehicles that steamed swiftly at him. The air vibrated with the fury of craft that poured forth from everywhere. And the Rofubian space machine charged around behind him, where Earth river craft had already sneaked for battle formation. He saw the resting space vehicles move slowly, about to take off in wave after wave.

"Rofubians cannot live in oxygen!" he shouted. "They must have chlorine air. You cannot share Earth's land with them, for I am melting the polar ice caps. Earth will be too warm for them once it is released from the icy clutch of the frozen poles. But they must not change the atmosphere to chlorine! When that happens, it will be too late. Pierce their space machines with huge fragments of the hot metal you are hurling at me. The chlorine will escape. Oxygen will flood their ships. And they will die!"

MORE than that he could not cry. Before the rest of the Rofubian craft took to the air and flashed around his head more swiftly than he could fight, he had to destroy them on their river mooring. At some unknown signal, the Earthlings' aircraft swarmed around from behind him. They came streaking viciously toward his face. Water vehicles played streams of vitriolic chemicals at his body. He felt the stuff biting savagely at his flesh. The chunks of metal that were slung at him he could ward off by tensing his muscles. Those were the least. Earth could do little to harm him.

But the Rofubians—he must destroy them!

Zarz ran furiously toward the Rofubian fleet. The mighty bridge across the river halted him.

"Let them have the shores of your continents," he cried. "Move inland. The tidal flood will drown their bases of invasion. Move to the highest ground. When the invaders have been defeated, I will help you organize your new life. With my science and yours, you can live more bountifully than before, even with half as much land—"

The aircraft stung his face. The streams of chemicals still played over his body. The large, gray water craft continued hurling metal at him. And three waves of Rofubian space machines had taken to the air! The others were moving forward inexorably. . . .

"This may cost me my life," Zarz shouted. "But at least I will start the destruction of invaders. Seek out and destroy their towers that liberate chlorine from the sea. Wreck their means

of existence. I will help you if you will let me—"

He tried to crawl under the powerful span, for he could not climb over it without killing the little men who traversed it in their land vehicles. But the Rofubian craft shocked him with a terrific charge of lightning. More were coming from the south, with their curling turret-spires sparking ominously.

Zarz could spare the few hundred Earthlings who were racing across the span. But that would be at the expense of countless thousands of other lives. He ran the two steps to the span, seized its thick strands of metal that suspended the path. With a single tug he yanked apart all but one strand. At that instant the nearest Rofubian craft released another bolt of lightning.

He screamed in hideous pain, batted out wildly at the Rofubian ship. It merely zipped higher into the air, out of reach, and sent another, more powerful charge of lightning at him. He felt the tremendous electrical fury streak through his arms into the metal towers that had connected the strands of wire, through his legs into the water. His heart was clutched by a hand that suddenly clawed it to a stop. He was being electrocuted. . . .

* * * * *

DR. BALLARD put the record on the phonograph and placed the needle in the groove. Professor Cody listened in silence until the entire roaring speech was finished. Then he shook his white head puzzledly.

"In spite of his monstrous size," he said, "that incredible being spoke a language that was born right here on Earth. It sounds like a more ancient form of Greek than any I've ever heard. Could it be—er—Atlantean?"

"It certainly could," Ballard replied. "Where he picked it up. I can't imagine. But the root-forms are definitely antecedent to the Greek."

Cody looked up sharply. "Are you implying that you've actually translated it?"

"All but some unimportant points. He claimed to be descended from the great reptiles, of a species that took to the water. But he, too, is of the Earth. He wanted to help us repel the Rofubians, who, it seems, are going to flood

the air with some poison. He is melting the polar ice caps, which will make Earth too hot for the invaders. Then his science and ours will enable his race and ours to live more bountifully than ever, even though we'll have less space."

Professor Cody smiled, his worried face smoothing out in relief.

"What astounding nonsense! The Rofubians are more like ourselves than that gigantic monstrosity. Of course, they haven't emerged from their space ships yet, but they state they aren't accustomed to our heavier gravity. They have to be conditioned gradually. The ice caps? Well, the Rofubians did warn us about the machinery at the Poles, and asked us to send bombing fleets to blow them up. Good thing we did, too. The tides were beginning to sweep pretty high over our shorelines. "He was going to help us? If it hadn't been for the Rofubians' warning against the monster coming down from the north, we'd have lost half our land area. He might have wrecked New York. We have the Rofubians to thank for saving us from that."

"Where did he come from, though?" Ballard persisted. "From the charred remains he certainly appears to have been descended from the great reptiles. And how did he know about the Rofubians?"

"There is a possibility that he came from the bottom of the ocean, though we haven't accounted for his artificial lungs as well as sealed gills. But the Rofubians have proved their good will toward us. They promise to teach us all their remarkably advanced science. With their help, we'll have a better

Earth than we've ever dreamed possible! Think of the energy we'll have at our command, once they have completed those tidal power plants they're building along the sea—" He broke off in a spasm of coughing.

"Why are they build—" Dr. Ballard choked, cleared his throat, and went on. "Why are they building them in secret?"

Professor Cody couldn't answer; he was gripping his burning throat with both hands. Ballard blinked, his eyes smarting terribly. Suddenly his facial expression became terrible.

"Chlorine gas!" he articulated. "Quick, Cody—the gas masks in the laboratory! For your life! The reptilian giant was right!"

TEN minutes later the two scientists were frantically trying to get in touch with the Government in Washington by radio. Only by a miracle did they make it.

"The giant reptile man was right," Dr. Ballard was warning in terse tones. "Don't ask me how he knew. But he gave us the answer which may save the world. Attack the Rofubians with liquid air. Shoot pellets of frozen oxygen at them. Destroy their towers which are manufacturing chlorine gas. Hurry, or it will be too late. New York is falling. . . ."

At last mankind awoke to battle before it was too late. There was yet a chance to defeat the green-skinned invaders. And who knew, perhaps that was a smile on the dead face of Zarz as his huge body was being towed far out to sea for reconsignment to the deep.




**TRY THE
STAR
WAY TO
SHAVE!**



STAR

WORLD'S
LARGEST SELLING
SINGLE EDGE BLADE

**4 for
10¢**

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25¢**

Science Quiz

HE'S in again—our question-and-answer man. This month he's here with more than seventy rounds of scientific interrogation. If you know it all, you won't have to turn to page 127 for the correct answers.

POSITIVE OR NEGATIVE

The following statements are either true or false. Although some of them appear to be as simple as answering what hit Newton on the head, look before you leap. (Par—15 correct.)

1. The formula of not one hormone is known.
2. A plumb-line does not point exactly to the center of the Earth, because the Earth rotates on its axis and is not strictly spherical.
3. A barrel of flour would weigh about half a pound more in vacuo than in air.
4. Silver is harder than gold.
5. It is found that solids in general expand much more than liquids.
6. Astronomically, the word "parallax" means the difference between the direction of a heavenly body as seen by the observer and as seen from a standard point of reference.
7. Only mammals are warm-blooded.
8. The spinal cord is a solid mass of white matter.
9. The waves of light all travel with the same speed in empty space.
10. The pulse rate decreases during illness.
11. Nitrogen, oxygen, and carbon pass through a cycle in nature.
12. Most gases can neither be seen nor detected by smell.
13. Ingenious rocks are rocks which have solidified with or without crystallization from hot natural solutions such as magma or lava.
14. The mating of closely related animals (inbreeding) is popularly regarded as a weakening process, but this is not entirely true.
15. The surface of the sun is never free from sunspots.
16. The radioactivity of radium is dependent on the chemical compound of the element.
17. The Ionosphere is directly above and below the Kennelly-Heaviside layer.
18. Lions are nocturnal in habit and are said to be generally shy.
19. Uranium and all its compounds are radioactive.
20. When iron is immersed in nitric acid concentrated, there is no visible reaction, although nitric acid dilute results in a marked reaction with iron.

TAKE A LETTER

Here are ten incomplete scientific facts. There are four suggested answers for each statement, the purpose of which is to confuse you. If you do your scientific homework daily, you should be able to spot the one and only correct phrase in each question. Par for this course is seven.

1. The number of eclipses that must occur each year is: (a) 1, (b) 2, (c) 4, (d) 7.
2. Mixing yellow and blue light produces a: (a) green light, (b) blue light, (c) yellow light, (d) white light.
3. The number of inert gases is: (a) 4, (b) 5, (c) 6, (d) 7.
4. The brightest object in the night sky with the exception of the moon and Venus is: (a) Mars, (b) Jupiter, (c) Sirius, (d) Alpha Centauri.
5. The portion of the moon that is never visible from the Earth is: (a) 41%, (b) 51%, (c) 59%, (d) 69%.
6. The most abundant of the rare earth metals is: (a) yttrium, (b) lanthanum, (c) illinium, (d) cerium.
7. The hardest metal is: (a) iron, (b) tin, (c) vanadium, (d) tungsten.
8. On the sun an Earthman of 200 pounds would weigh: (a) 5580 pounds, (b) 6680 pounds, (c) 7770 pounds, (d) 8770 pounds.

9. A cable of a suspension bridge, if the load is uniformly distributed along the the bridge, assumes the form of a: (a) straight line, (b) ellipse, (c) hyperbola, (d) parabola.
10. The nearest approach to the "missing link" is thought to be the: (a) Peking Man, (b) Java Man, (c) Piltdown Man, (d) Neanderthal Man.

TRIPLE PLAY

Wanted—three of a kind! In Column I below are mentioned several fundamental scientific qualities. In Column II are numbers associated with these qualities. Your job is to match the proper quality with its number, and then to prove you know what you're talking about, match the units of Column III with your quality-number answers. (Par for this lap—18 correct.)

- | | | |
|-----------------------------------|---------------------------|--------------------------------|
| (1) Density of Water | () 0 | () pounds |
| (2) Mass of the Earth | () 2.2 | () years |
| (3) Horse Power | () 14.7 | () grams |
| (4) Speed of Sound | () 18.49 | () miles |
| (5) Mean Period of Halley's Comet | () 32 | () days |
| (6) 1 Light Year | () 62.4 | () pounds per square inch |
| (7) Kilogram | () 77 | () miles per second |
| (8) 1 "Atmosphere" | () 225 | () degrees centigrade |
| (9) Acceleration of Gravity | () 550 | () pounds per cubic foot |
| (10) Earth's Orbital Velocity | () 1087 | () foot pounds per second |
| (11) Melting Point of Ice | () 5.88×10^{12} | () feet-per-second per second |
| (12) Sidereal Period of Venus | () 6×10^{27} | () feet per second |

STAR-WANDERING

Will you go star-wandering with us? The following terms, when rearranged in their proper sequence, spell the names of the different constellations. Number 6 should be an easy one for you to tuck under your belt. Par—eleven correct.

- | | | | | |
|----------|----------|------------|-------------|----------------|
| 1. elo | 4. cardo | 7. rigov | 10. sipecs | 13. curlshee |
| 2. rayl | 5. ribla | 8. racecon | 11. rutusa | 14. demondaar |
| 3. setuc | 6. riono | 9. sunycg | 12. gapesus | 15. passcioaie |

MAGNETIC ATTRACTION

We wind up this month's Quiz by giving you a formula for success. Have you a magnetic personality? No? Then maybe it's because you're not up on your properties of magnetism. Test yourself on the following few paragraphs by supplying the missing words. Par is 10 and if you score that or better consider yourself par-a-magnetic.

Centuries ago it was discovered that a certain kind of rock, called _____, has the power of attracting iron filings and small fragments of the same rock. When a steel bar is rubbed with such a natural magnet, the steel itself becomes _____ and is then called an _____ magnet.

If a magnet be rolled in iron filings it will be found that the filings cling chiefly around the two ends of the magnet. These points where the attraction is greatest are called the _____ of the magnet—and the line joining these points is called the magnetic _____. If one point is called the north pole of the magnet, the other is called the _____ pole.

If one pole of a magnet be brought near to each of the poles of a suspended magnet in turn, it will be found that _____ takes places between two dissimilar poles, but that like poles _____ each other. Coulomb showed that the force between any two poles is directly proportional to the _____ of their respective strengths, and _____ proportional to the square of the distance between them.

By far the most important magnetic substances are _____ and _____. Substances that are capable of being attracted by a magnet are known as magnetic or _____ substances.

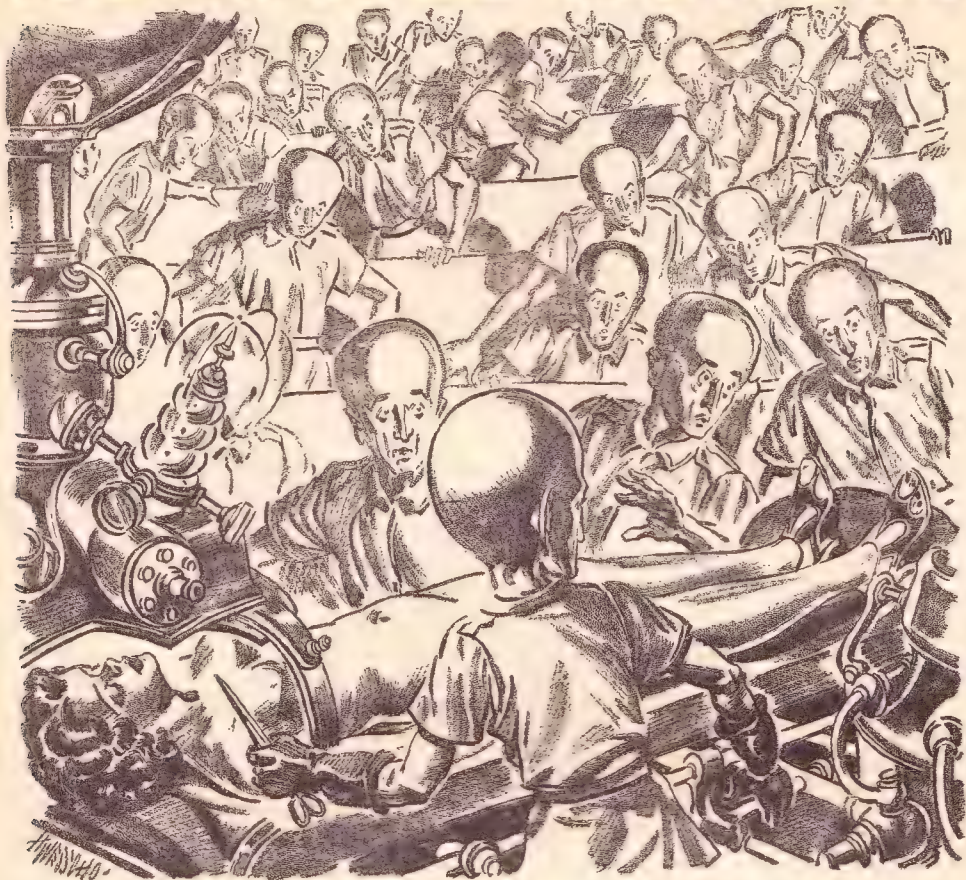
WHAT'S YOUR SCIENCE I. Q.?

After you've completed the SCIENCE QUIZ and checked your results with the correct answers, get a slide-rule and calculate your score. Here's how you rate:

- 75-82—Superman
60-74—Mental Marvel
45-59—B.B. (Bachelor of Bookworms)

- 30-44—Try Crossword Puzzles
15-29—Stick to Fiction
0-14—Absolute Zero

ROMANCE ACROSS



By **WILLARD E. HAWKINS**

Author of "The Cowled Menace," "Castaways of Plenty," etc.

CHAPTER I

The Searcher

DUR 137-998 was at no pains to conceal his annoyance when the placid, pear-shaped countenance of Quintus 76-962-43 finally appeared on the visi-screen.

"What delayed you?" he demanded. "After calling me, you kept me waiting a full ten sectors."

"I have been engaged in writing a love letter," returned Quintus. "I desire your opinion upon its effectiveness. The letter is addressed to—"

"Stop!" shrilled Dur. "Do you expect me to waste my time listening to such drivel?"

"Please, Dur — I have a reason," Quintus protested anxiously in his piping, high-pitched voice.

Reluctantly Dur read the letter that Quintus held before the screen.

Adored one: To you, whose vibrations accord so perfectly with my own that the finest instruments can detect no dissonance, I indite these words of appreciation. Throughout the Universe shall there be no more harmonious blending of vibrations than ours. Even the classic mating of Drixnar 83-272-11 and Mir Dufa 25-938-99, which in some of its phases attained perfection of harmony to seven decimal points, will fade into insignificance beside ours.

For without malice, but purely in the spirit of scientific discussion, I may point out that there were theoretical dissonances in the full equation of their personalities.

In our union it will be possible to detect

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THE AGES

A Complete Novelet



Johnny plunged bellowing toward the outstretched figure on the slab

Futureman Quintus 76-962-43 Thought Estrella Vibrated at the Perfect Wave-Length—But It Was Only Her "Oomph"!

no dissonances down to the eighth decimal point. Thus it will stand unquestioned as not only the most perfect mating known to science, but the most perfect that can be conceived. To prove this, I need only to point out that beyond the eighth decimal point the most delicate instruments, combined with the most extreme amplification, would be unable to detect a hypothetical lack of synchronization.

My impatience for the happy alliance predicated by these mathematical auguries knows no bounds.

Your devoted vibrational complement,
Quintus 76-962-43.

WHEN Dur finished reading, he found Quintus staring at him inquiringly.

"Sentimental slush!" growled Dur.

"It has all the faults common to such compositions — especially maudlin exaggeration. If the truth be known, you are lucky if the Mating Bureau has found you a feminine complement within the eighty per cent range of compatibility.

"On the contrary," returned Quintus placidly. "This is not the usual exaggeration of a lovesick swain, but a mathematically correct statement."

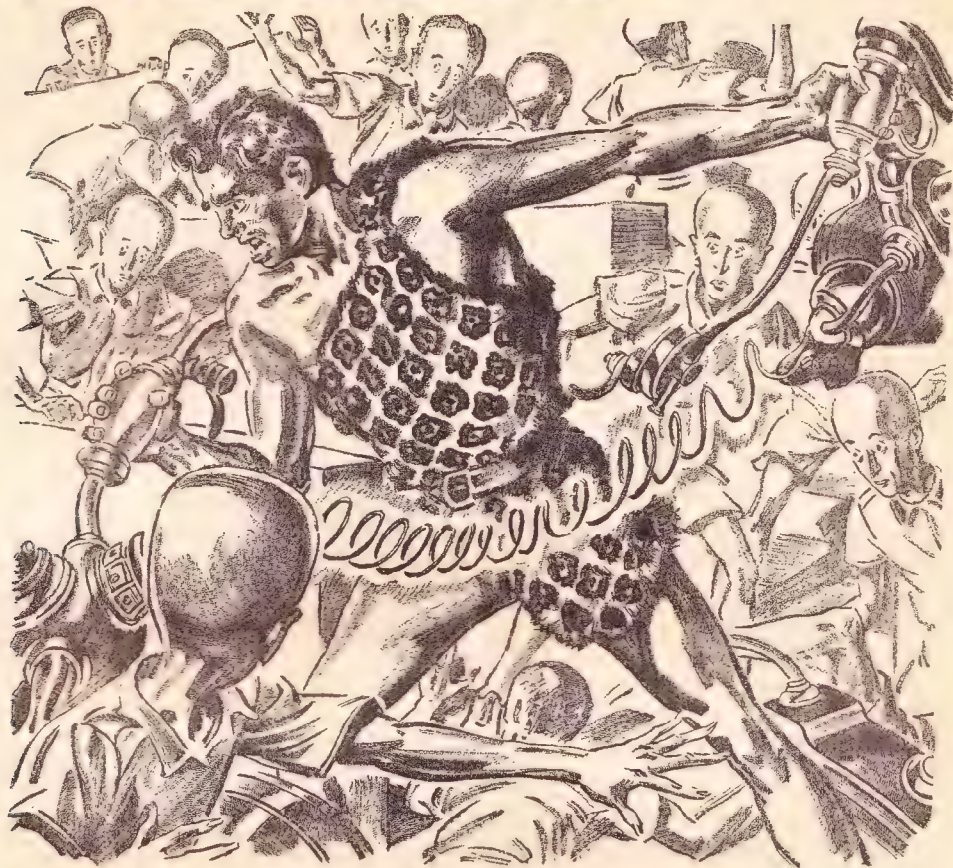
Dur stared. "Where," he demanded skeptically, "did the Bureau discover a mate of such unprecedented co-ordinates?"

"The Bureau did not locate her."

"Then this is all a joke? You waste

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"The Bureau did not locate her."

"Then this is all a joke? You waste

my time with this nonsense—"

"Calm yourself, Dur. It is true, I consulted the Mating Bureau. You may know something of the procedure."

"Certainly I know the procedure! The microfilm record of your vibrational equation is fed into the scanning machine. That automatically selects, from the millions of feminine recordings, all that are complementary to it within a predetermined range. You are given a visi-screen interview with the highest on the list. If mating arrangements are not convenient with the first choice, the next is tested, and so on, until a mutually satisfactory interview takes place. A perfect system, scientifically and mechanically. Freedom of choice, yet sanely controlled."

"Theoretically perfect, yes!" Quintus retorted. "But would you assert that all our matings are blissfully harmonious?"

"Of course not. But at least you have the consolation of knowing that you found the most nearly harmonious mate available. Do I understand that the Mating Bureau found no partner for you within the range of tolerance?"

Quintus hesitated. A faint color suffused his face.

"They found a vibration they deemed suitable," he admitted. "The percentage rating was ninety-six point seven."

"Incredibly high!" exclaimed Dur. Then he chuckled. "The same old story, I suppose. She was either an old crone of some three hundred years, on the verge of euthanasia, or else still in the incubator."

Again Quintus colored. "No. She was of suitable age."

"Then what are you hesitating for?"

"Perfection."

"An impossible dream. Since you have proved it unattainable, why not make the best of things?"

"I have not proved it unattainable," returned Quintus with some heat. In fact—" He broke off. "Dur, will you come to my laboratory? I have something to show you."

A frown creased Dur's high-domed brow.

"I am very busy."

"I know."

Quintus waited expectantly.

Dur shrugged. "Very well. Look for me in twenty sectors."

QUINTUS 76-962-43 was making the final adjustments in his apparatus when a helicopter from the nearby stratoport deposited Dur on his roof landing.

As he entered the laboratory, Dur's attention focused at once on the mechanism at which his friend was engaged. It was a complicated affair of glowing tubes, grids, and intricate devices beyond the comprehension of any except an advanced scientist. In spite of himself, Dur's eyes lighted with interest.

"I did not know whether I would find Quintus the dreamy lover or Quintus the scientist," he observed sardonically. "It is a relief to find the latter. What is this? It looks like a madman's dream of an interplanetary radio receptor. Obviously a beam-directing device of some sort."

"In a sense," responded Quintus calmly, "it is I."

"Explain. I have no patience for riddles."

"It projects a beam of energy which duplicates the vibrations of my personality formula. Yet, more than this, it is a search beam."

Dur bent over the contrivance with close attention.

"Very ingenious," he acknowledged grudgingly, "although the principle is far from new."

"I claim no novelty for the basic principle. You will note that I have incorporated the response phase developed by Indo Rur, forty-six-four thousand-two. It makes a beam receptive to vibrations at the point of focus and returns them to its source."

"I know," Dur commented impatiently. "It is in common use, to detect mineral or other deposits, to supplement spectroscopic readings, to warn of meteors in the path of space vessels, and the like. What is your application?"

"When my beam impinges on a complementary personality, it returns the vibration and registers the degree of harmony with my own. Let me demonstrate."

Quintus made various adjustments with his delicate fingers. A faint whirring sound could be detected. The tone color of certain glowing tubes altered subtly. A group of wheels beneath the main focusing standard merged almost into invisibility with the speed of their revolutions.

"The beam is now scanning the world's surface," explained Quintus. "It will complete its scanning in approximately nine sectors. However, it will pause automatically and hold the focus, on impinging upon a vibration which is complementary to my own within any specified degree of tolerance. I have set it for eighty per cent. Watch closely."

Scarcely had he spoken when the transparent face of an indicator became illuminated.

"It has found a possible mate for me," commented Quintus. He consulted the directional scale. "She is located at North Latitude thirty-six-sixteen-thirty, West Longitude seventy-six-eleven-twelve. The light meter shows her vibrational correspondence with my ideal to be eighty-three point seven per cent. Which, I may add, checks with the Mating Bureau report."

"Is your beam capable of scanning other planets?"

"Obviously. But what could married life offer with a mate who perhaps would be entirely inhuman? She might even be forced to spend her life in a tank of ammonia, provided she consented to join me here."

DUR had listened only abstractedly, more interested in the device than in what his friend was saying.

"Then forget your love-sick dreams. You have proved that your ideal doesn't exist on Earth—and you can't have her if she lives elsewhere. Where in the name of all the galaxies do you expect to find her?"

"In the past," replied Quintus soberly.

"In the what?"

"You understood me. Sometime, on this very planet, I am convinced, there must have existed the ultra-fortuitous blend of characteristics required to

complement my own."

Dur glanced at him sharply.

"Why have you dragged me into this?" he demanded.

"Already you suspect the reason. As the greatest living authority on time-space physics, your help is vital to me."

Dur accepted the tribute as his due.

"But surely," he exclaimed, "you must be aware that time travel—even the transfer of inert matter—is in its infancy, scarcely beyond the theoretical stage."

"You have sent objects into the past."

"True, but our efforts to drag substances from the past into the present have not met with great encouragement."

Quintus nodded.

"And if you will forgive my suggesting it, your failure is due to one fatal oversight. If you were dredging the ocean, or drilling through the rock for some buried object, what would you do first?"

"Naturally," replied Dur, somewhat nettled, "I would first locate the object with a search ray similar to your—" He broke off. "Is that what you refer to?"

"Exactly. You have been probing blindly into the past. Little wonder that such fumbling methods brought few results. A grappling device sent thus blindly toward the bottom of the ocean would be more likely to come up empty, or clutching worthless slime. Combine my search beam with your time-transfer principle, and you will have something, Dur."

"Combine it? How?"

"That is a problem which I expect you to solve."

"But it involves enormous difficulties!"

Quintus glanced artfully at his companion.

"It may be that Gruno, eight-sixty-seven-fourteen-three, would be the better man for me to consult. His paper before the Junior Scientific Institute showed him to be a coming authority on time-space physics."

"That upstart? His paper was a mess of fallacies! I am surprised, Quintus, at your being taken in by it. You were right in turning to me. In

fact, even now, I seen a potential application of your principle. Give me five days and I promise you—"

Already Dur was hurrying from the room.

Quintus smiled placidly as he closed the power circuit of his instrument.

CHAPTER II

The Object

WITH a burst of handsprings which hurled her clear across the stage, Estrella, the Oomph Girl, brought her acrobatic dance to a thrilling finale. By skilful timing, she coaxed two curtain calls out of the audience—bursting onto the stage in all the glory of her vibrant figure. Then in the wings her exuberance collapsed. She caught up her wrap and stumbled wearily toward the dressing room.

A powerful young man, sketchily clad in shorts and an overcoat, eased himself guiltily from the bench in front of her dressing table, as she kicked the door open. The Oomph Girl flung herself onto the vacated seat.

"Get out," she ordered tersely. "I've got to dress."

The young man conceded her right to privacy to the extent of dragging a screen around her.

"Look here, El—" he began plaintively.

"Shut up!" Then: "What's the idea, pawing through my dressing table?"

"Shucks, Ella, I'm only trying to find my book. Thought maybe you might have hidden it. You know the way you felt about my studying to be a ventriloquist. I know blame well I left it in here. And that ain't the only thing—"

There was an exasperated movement behind the screen.

"Johnny Mason, once and for all, I did not hide your ventriloquism book. I haven't seen it since you left it here last week. But if the book is lost, I hope it's for good. You're simply wasting your time."

"But Ella, I don't want to be a dumb cluck in a strong-man act all my life.

I want to get somewhere, be something. I bet you'd marry me quick enough if I had an act like—"

"I wouldn't give you a tumble even if you was Edgar Bergen," she interrupted coldly. "The only reason I let you hang around is to keep off even worse pests."

"I'm sure glad to do that," returned Johnny feelingly.

"Then stuff yourself into some clothes and get me past the door. We've just about got time to wolf a hamburger before the first evening show. Damn this four-a-day stuff, anyway. It's getting me down!"

Half a dozen callow youths were lounging outside the stage door. They crowded forward hopefully as Estrella, the Oomph Girl, appeared in her street toggery. Their hopeful looks—and the youngsters themselves—faded as two hundred and twenty-five pounds of escort took her possessively by the arm.

"He ain't seen it neither," Johnny commented plaintively as they emerged in the crisp evening air.

"Who ain't seen what?"

"The doorman. My book, of course. What else we been talking about? My 'How to Be a Ventriloquist.' And that ain't the only thing missing. There's a box of chocolates I was aiming to give you. Sure you didn't find it in your room?"

"Nope. But I appreciate the thought, Johnny. I really do."

ESTRELLA'S mood softened as they seated themselves on stools in the hamburger joint.

"If my book don't turn up, I can send for another," Johnny observed philosophically. "Honest, Ella, ain't there a chance for me? I mean, if I did something worthwhile, like getting my name in lights."

"Please, Johnny, lay off! I'm so—"

His pleading expression arrested her words. Impulsively she laid a hand on his wrist.

"Johnny, I wish I could fall for you. It isn't what you do. Top billing on the biggest circuit in the country wouldn't change things. It's just that I—that I—"

"You mean," he tried to say it

casually, with a grin, but the effect was a wry grimace, "there's somebody else? Somebody's beating my time?"

"No, there isn't. Or, that is, in a way—Johnny, you just wouldn't understand."

"Maybe I could try."

She hesitated, searching his open face for a furtive amusement.

"I guess this is what it amounts to, Johnny. I'm in love with a sort of an ideal. I know I'll never meet him in real life. But sometimes at night—Honest, I don't know why I'm telling you this."

"Go on," he said bravely.

"Well, it's just as if he comes to me. I can't tell you how it's like, but I feel he's there. I know it's because I have such a feeling of—of being with someone I was meant for. Oh, I know it sounds ridiculous!"

"What's he say?" demanded Johnny. "What's he look like?"

"That's just it. I can't remember. It's only that he's been there, as if we didn't need any words between us to know we belong to each other. Like we was soul-mates. Oh, Johnny—" the girl's voice broke. "I'm sorry, because it's spoiled me for anyone else."

"How—how long's this been going on?"

"The first time was when I was just a kid," she blurted. "Ten years ago I remember, because I'd been having my first tryout. I had a dream about this wonderful guy coming to me. It was so real, I couldn't think about anything else. Somehow I knew he'd come again—and he has—just the last few nights. It's something I can't explain. But you do understand what I mean, don't you, Johnny?"

He took a long breath.

"No," he admitted candidly. "I guess it's over my head. But I'm glad you told me how things are. I'm glad it ain't anybody real."

For every action, there is an equal and corresponding reaction. If Johnny Mason had been versed in this principle of physics, he might have been less astonished by what happened later. Estrella, the Oomph Girl, had softened inexplicably during their half hour together. But suddenly she burst from her dressing room after the first eve-

ning performance, screaming hysterically that she had been robbed.

"Gosh!" muttered Johnny, edging into the crowd that quickly surrounded the girl.

RAGING in her doorway, clad in the scanty costume of her dance, she looked a veritable fury. But she was an undeniably beautiful one.

"Someone's in there!" she insisted. "He snatched the cape right off of my shoulders."

The road show manager peered into the room.

"There ain't nobody there," he declared with conviction.

"I know there ain't now, you boob! But he grabbed my wrap. And when I get hold of whoever's playing these tricks, I'll—"

"Sure, Ella," he agreed soothingly. "We'll catch the dirty bum." Then his skepticism overcame his caution. "You say someone yanked the cape off your shoulders and you didn't see 'em? That don't sound like sense."

"You calling me a liar?" she blazed. "Why, you fish-faced dummy, I don't have to take your insults! I wouldn't play in your tenth-rate road show if you was to give it to me. I'm tired of playing in cheap rat-holes and having low-down tricks pulled on me. Get yourself another act. I'm through!"

The next instant the backstage crowd was staring at the door which the Oomph Girl had slammed in its face.

The manager looked around with a harried expression.

"She'll calm down," he observed with hollow confidence. "Just nerves."

Catching sight of Johnny, his face lighted. He jerked his head significantly toward the door.

"You can handle her," he said. "Go in and give her some of the old salve. Tell her what a good trooper she is. You know, sweeten her up."

Johnny, clad in the leopard skin which added color to his strong-man act, shuffled forward reluctantly. He tried the door, found it unbolted, and cautiously eased himself in.

She was standing in a startled attitude in front of her dressing table. Vaguely Johnny noticed that it had

been stripped bare. Estrella turned sharply at his entrance.

Then a mist seemed to envelop her—and she wasn't there. . . .

"Ella!" he mumbled thickly, stumbling forward.

UNDER the weirdly glowing lights of the enormous laboratory, two beings stood intently gazing at a dial. Both were splendid specimens of the manhood of their day. Better than four feet tall, they had high, bulging foreheads which gave their large craniums a pear-shaped appearance. Dur tipped the scales at ninety-one pounds and Quintus at eighty-four. Both were in the prime of life—slightly over a hundred and twenty-five years of age. They wore the conventional one-piece garment, sleeveless and stopping a little above the knees.

"The force field is functioning perfectly," observed Quintus. "Do you know, Dur, I can scarcely restrain my impatience. To think that in—" he consulted the dial—"something less than four sectors, I shall be face to face with my future mate!"

Dur nodded gloomily.

"From a scientific standpoint, the experiment is a success," he acknowledged. "But again I warn you, Quintus, be prepared for disappointment."

"There will be no disappointment. The search ray we sent into the past brings a definite response. It indicates that we have located a being whose personality coordinates check with mine down to the last decimal. Not only that, but I have measured the response of this being to the impingement of my personality. Unquestionably she was aware of the proxy vibration which brought us close together."

"Before letting yourself be carried away by enthusiasm," warned Dur dryly, "bear in mind that this female being from the remote youth of our world is likely to be a rather frightful looking creature. The illustrations in that book reveal that people of her time carried bony structures in their mouths which they knew as teeth. Her head will be small out of proportion to her body and disfigured by a repulsive growth of hair."

"Such deformities can be corrected

by our surgeons," responded Quintus imperturbably.

"Let me remind you also," Dur added a trifle maliciously, "that we detected vibrations of a personality in some way associated with hers. These vibrations, unquestionably masculine, exercised a disturbing influence upon her equations."

"I fear no rival," returned Quintus, with some heat. "Our vibrations are too scientifically harmonious to permit of another coming between us. Dur, I have a thought!"

"Yes?"

"Would it not be a kindly gesture to let this kindred creature accompany her? She is attached to him, regards him as a pet, perhaps. His presence might cause her to feel less strange in an alien environment."

Dur glanced at his friend with chagrin.

"Very well," he admitted wryly. "Since you have anticipated me, I may as well confess. I had thought to have some amusement at your expense. They are both on their way."

"Excellent," Quintus exclaimed. "Although," he added, smiling, "I regret spoiling your surprise."

The two watched the dial silently, familiar with its strange configurations. It traced the progress of the objects held inert in space-time from a definite point of the past to the equally definite present.

QUINTUS glanced at the array of objects on a stand. There was a red cape, likewise an object with a high covered wooden heel and beribboned buckle which they had determined must be the support for a deformed foot. There were various jars of pastry substance in assorted tints and colors, and a box of soft, brown objects, roughly spherical, bearing the label "Bitter-Sweets." Chemical analysis had shown the brown pellets to be poisonous to the human system, so the first theory that they might be food pellets was discarded.

Most important of all was the book. Quintus regarded this priceless possession affectionately.

"The mathematical laws of chance have smiled upon me," he observed.

"If we had not succeeded in wresting this invaluable object from the past, it would have taken us days to establish communication with our visitors. Thanks to this key, we have been able to reconstruct the childishly simple written language of these ancients. Even more, owing to the explicit directions for forming sounds with the larynx, we have before us their system of phonetics. It will be the greatest thrill of my life to greet my bride in words of her own language. But attend, Dur. The dial!"

Dur studied the face of the indicator for a moment and made some careful adjustments. The two turned their faces expectantly toward a huge glowing sphere which formed the central portion of the beam-projecting, time-grappling instrument.

At first glance, the sphere appeared to be composed of some shimmering, semi-transparent substance. Closer examination revealed that it was a field of force vibrations, rendered incandescent by the enormous strain of their warping into spherical shape.

As the two watched intently, a shadowy nucleus appeared within the sphere, to be joined a moment later by a second shadow. Dur touched a switch and the force field vanished.

On the platform stood two alien beings.

The couples stared at each other in mutual consternation for an instant. Then came a shuddering cry.

"Oh, Johnny!"

The smaller of the two alien beings clung to the other, as if for protection.

Quintus hesitated only a moment. Conquering his first repulsion, he stepped forward. From his immobile features, in queer, distorted accents but unmistakable English, words emerged painfully.

"Bee-lov-ed, I gurreet you. You ar-r-rh my a-dor-ed one of the ages."

Estrella, the Oomph Girl, jerked away from her companion suspiciously.

"What is this? she demanded. "A gag? How'd you get me here?"

The question was addressed to Johnny, who only stared in fascination at Quintus. Estrella's temper, ever near the surface, flared to the melting point.

"Don't play innocent!" she stormed.

"Can that Charlie McCarthy stuff and get me out of here. Your act is good, but you forgot to make the dummy work his mouth."

Johnny suddenly came to life.

"It ain't me," he insisted. "Gosh, it's this sideshow freak that's good! Say some more, mister."

CHAPTER III

The Object Objects

QUINTUS vaguely caught the import of the words. In his stilted syllables, he responded.

"Apparently you express astonishment, not so much that we talk in your language, but at our doing so without moving our lips. We understood from the manual that this was your custom—presumably to hide the deformities which you call teeth."

He gestured toward the stand on which were ranged the articles drawn experimentally from the past. Johnny dived for it.

"My book!" he shouted delightedly. "Look, Ella. And here's your junk. Your cape, your slipper, the candy—all your makeup stuff—"

Estrella looked from one to the other doubtfully, not quite sure where to vent her anger.

"Look here, monkey-face," she addressed Quintus. "Give me the low-down. What's this all about?"

Quintus stared helplessly.

"The being obviously wishes to know who we are and how she found herself here," Dur enlightened him.

"To be sure," Quintus agreed hastily. "My adored one, you have been transported from your own remote period of the past to this era of enlightenment. The purpose of that transportation will give you the most exquisite pleasure. You are my vibrational complement, my equational coordinate, my—"

Estrella surveyed him in horror.

"You ain't by any chance trying to make love to me," she demanded.

"That is indeed the word I should have used," responded Quintus. "Love! It does roll pleasantly from the larynx

in your language. An exceptionally harmonious range of vibrations must be connected with the syllable. Together we will analyze them at a later date. But to enlighten you. I am Quintus seventy-six - nine - sixty-two-forty-three, and this is Dur one-thirty-seven-nine-ninety-eight, one of our most distinguished scientists. It was his genius which combined my search ray with a time-tractor beam, thus locating and bringing you here."

"The guy's a nut," declared Johnny. "But gosh, what a ventriloquist! You can't even see a quiver of his mouth when he talks."

"Keep still," rejoined Estrella. "I'm thinking."

Her eyes ranged over the huge, white-domed laboratory, with its massive and incomprehensibly intricate equipment. Then it returned to the two strange beings, so oddly human yet so distorted.

"Is this on the level?" she asked anxiously. "What's the year?"

"It is—" Quintus considered. "Our calendar system would mean nothing to you. It may be clearer to explain that we found you, my exact vibrational complement, by going four hundred thousand, nine hundred and fifty years into the past, scanning the world's population at fifty-year intervals. Your vibrations, I may add, were contacted at a point some ten years prior to your present age. Your response to the impact of my personality convinced us that you were at that time in an adolescent state. We therefore made a further contact ten years later."

"Ten years!" Estrella gasped. "You mean, you were the one that I thought was—"

"She desires to know," explained Dur, "whether you impressed yourself upon her consciousness at the intervals mentioned."

"I fully grasp the point she is making," returned Quintus with dignity. He turned to the girl. "Am I not right in assuming that, both at the earlier period designated and also within the few days preceding your transition here, you were conscious of my presence? That you sensed vibrations whose attunement to your own created a sensation of ineffable harmony?"

SHE stared at him in mingled horror and conviction. Suddenly she broke into uncontrollable laughter. The convulsions, increasing in violence, rocked her from head to foot. Dur and Quintus watched helplessly. But Johnny, wise through sad experience, recognized the symptoms.

He dropped his precious book to grasp her by the arm.

"Stop it, Ella," he commanded, shaking her. "Get hold of yourself."

When the paroxysms showed no sign of abating, he swung her toward him and administered a stinging slap. At once she subsided, dropping limply to the edge of the platform, where she sobbed gently.

Quintus and Dur had drawn back aghast.

"Physical violence!"

"Incredible!"

"The primitive brute!"

Both men of the future had cried out in shock, but which exclamation came from whom was not apparent, since neither moved a facial muscle.

"Hated to do it," Johnny explained apologetically. "She's hysterical from the shock of finding what a gosh-awful freak she's been having them dreams about. I'll say this, mister. You sure had her going. Say, how'd you get it down so pat—that trick of talking with your mouth shut? I been practising about a year and still I can't get anywhere near as good."

"The instructions were precise," answered Dur. "However, a few surgical alterations in the larynx simplified matters."

"I want to go back!" suddenly wailed Estrella. "These guys give me the creeps!"

Dur and Quintus exchanged glances. "A rest period seems to be indicated," observed Quintus in his own language.

The two visitors from the past were whisked to sleeping apartments in capsulelike tube conveyances. They would have been much surprised to learn that they were quartered several miles from the laboratory.

Estrella refreshed herself by a plunge in the fragrant pool she found in what was apparently the modern counterpart of a connecting bath. Then she sank

drowsily into the comfort of a pneumatic slumber couch. Before she could even try to reason things out, she was asleep. She was unaware that the soothing vibrations of a sleep ray automatically lulled her senses into oblivion the moment her weight rested on the couch.

Back in Dur's laboratory, Quintus adjusted another beam. He had designed it to impress his personality upon the feminine complement of his longings. The search ray brought an immediate response, vibrant, glowing, ecstatically harmonious to his senses. For a moment he reveled in the sensation, then abruptly switched off the power. Even dominating the vibration was his visual remembrance of this girl of more than 400,000 years past.

She was a veritable giantess from his point of view. Her body glowed with a vitality which in itself was frightening. He shuddered in fascinated memory at the gleaming white teeth he had glimpsed through her parted lips of strangely scarlet hue. He recalled the raven hair that crowned the part of her abnormally small head which in a woman of his time would have been a smooth white dome.

Of her body, he tried not to think. Instead of the flat chest and straight contours characteristics of a normal human woman, hers was a thing of fulsome curves.

All of which was very disturbing. But after all, modern surgeons, with their swift, painless methods, could do wonders. His features settled into an expression of grim determination.

As for the ancient man, with his enormous size, bulging muscles, and arrested mental development—well, after the girl had become accustomed to her environment, the kindest thing to do would be to send him back.

SOME signaling device must have informed Dur and Quintus when their charges awoke the next morning. For they were waiting as the two emerged from their rooms.

Johnny's first complaint was for the lack of his pants. He had been snatched from backstage in his strong-man costume, consisting of little more than a deftly fashioned leopard skin.

"Quit your beefing," Estrella admonished him. "You got more on than I have. Anyway, if these freaks can go around dressed in rompers, I guess clothes don't make much difference here. How's about breakfast?" she demanded.

Quintus bowed his head in abject apology.

"I forgot that you are unacquainted with our conveniences for supplying nourishment."

He led the group into Estrella's room, where the touch of a button on a wall device caused a small white pellet to be ejected.

"Just like getting peanuts out of a slot machine," remarked Estrella. Gingerly she sampled the pellet. "Not bad, not good," she pronounced it. "Still—"

She pressed the button several times, casually swallowed a few more pellets, then offered the rest to Johnny.

"No, thanks," he declined politely. "I don't need no pills before breakfast."

"Try 'em," she insisted. "They sort of hit the spot."

Johnny swallowed half a dozen, while a glow of satisfaction spread over his face. Quintus, with a horrified remonstrance, prevented him from taking more.

"My fault!" he ejaculated. "I should have warned you. No doubt the food pellets of your time were of less concentrated nature. One of these is sufficient for a day's nourishment."

"It does set like a full meal," admitted Johnny. "Still, I kinda miss the fun of eating it."

"Our agenda for the day," said Quintus, reverting to more important matters, "is that Dur shall take you on a tour of the hemisphere. My chosen mate and I will discuss our plans for the future."

Johnny took a belligerent step toward him.

"What the heck," he roared. "She ain't your mate, buddy."

"Run along, Johnny, and take in the sights," Estrella urged him. She added significantly: "Don't worry about me. If this bird makes any passes, I'll take care of him."

A glance reassured Johnny. The Oomph Girl, with her athletic though

feminine figure, did not seem in much danger from this spindly-limbed, big-headed midget.

"What are we going on?" Johnny asked cheerfully, as Dur led him to the room tube. "A rubberneck bus?"

At their departure, Quintus turned to his prospective bride.

"Your numerical designation, I presume, is thirty-four-one-forty-eight-sixty-seven. Since I heard your companion refer to you as Ella, the official name evidently is Ella thirty-four-one-forty-eight-sixty-seven."

"Where do you get that three-four stuff?" she demanded. The Ella part is all right. Short for Estrella."

Quintus was somewhat taken aback.

"With us," he explained, "every person is identified by a personality vibration. This, of course, involves a complicated formula, but it can be reduced to numerical coefficients. Knowing your vibration formula, I naturally reduced it to the proper numerical symbol.

"But come! I have arranged that we shall register with the Mating Bureau this afternoon. In order to avoid the embarrassment to both of us of your present abnormal appearance, we will first attend to that detail." He touched a switch which opened a panel in the wall. "This tube will take us directly to the surgical center."

THOUGH not quite comprehending, Estrella nevertheless recoiled.

"Surgical what?" she demanded.

"The surgical center. There your physical abnormalities will be eliminated, at least insofar as possible. It will require only a few hours to remove your teeth, that repulsive hair growth, and those bulging contours. Of course the growth-controlling hormones, which will increase the size of your skull and shrink your limbs to normal proportions, work more slowly. But I shall explain to the Mating Bureau that the proper injections have been made, and that in a short time you will differ little in outward appearance from normal women."

"Not today you won't!" returned Estrella with emphasis. "I like me the way I am."

"You refuse the treatment?"

"I sure do. So just forget it."

A look of desperation came into the eyes of Quintus. He glanced furtively over his shoulder, then touched a tiny switch in the pouch at his side.

Warned by a vague sixth sense, Estrella regarded him uneasily. But she could not, of course, see the emanations from the beam projector in the pouch. She felt strangely dizzy. A moment later she stumbled blindly into the waiting passenger capsule.

IT was mid-afternoon before Dur returned with Johnny from their stratosphere flight over the Western hemisphere. The twentieth century man made for the nourishment vender on the nearest wall and treated himself to a few pellets.

"Where's Estrella?" he asked then. "Gosh, what a sock it'll give her. Wait'll I tell her there ain't any New York or Chicago, or anything she used to know about. Everything's diff'rent. Where is she?"

Quintus shifted uneasily.

"She is being prepared—for our nuptials."

"What's he mean?" Johnny appealed to Dur.

Even the latter looked surprised.

"Do you imply," he asked with a searching glance, "that she submitted voluntarily?"

Quintus drew himself up indignantly.

"Why do you ask? You know as well as I the penalty for subjecting any unwilling individual to surgical treatment."

Dur's expression cleared.

"True, you would hardly do anything so foolish. It merely surprised me that she offered no objection. Incredible as it may seem, Johnny assures me that such excrescences as teeth, hair, and—er—prominent contours were regarded in his day as assets to beauty. They called this particular representative of her species the 'Oomph Girl' because of them."

"There is a strangely disturbing quality about those contours," admitted Quintus. "Oomph—a strange word. What is its definition?" he asked Johnny.

"There ain't no definition. You just take a look at Estrella and get it."

"Evidently," commented Quintus, "a crude method of expressing her vibrational formula. Graphic, even if not scientific."

"Look here, you guys," broke in Johnny. "What have you done with Estrella? No kidding, I want to know."

Dur looked at Quintus. Quintus looked at Dur.

"Come through!" demanded Johnny, in growing alarm. "Take me to where she is, and right now!"

CHAPTER IV

End of the Quest

QUINTUS edged away from Johnny's wrathful countenance. Dur hesitated, then spoke gently.

"You understand, of course, the purpose for which Estrella was brought here. She is to be the mated consort of Quintus seventy-six - nine - sixty-two-forty-three. Naturally her physical constitution must be altered before she can fit into our modern world. A mere surgical detail."

"You mean you're cutting Estrella up? You're making her a freak?"

The apologetic look on both faces was sufficient answer. With a roar of anguish, Johnny went into action. He grabbed up the two midgets and held them dangling in the air, a huge fist clutched around each spindly neck.

"Take me to where she is!" he roared.

Gurgling and choking, both men clutched futilely at his wrists. Johnny relaxed his grip on Dur.

"The tube—to the surgery—is over there," choked the latter, pointing.

When Johnny had dragged them to the panel indicated, Dur pressed the button. As the three entered the passenger capsule, Johnny released his prisoners, but watched them balefully.

"It will be too late when we reach the Center," Quintus gasped in his own language. "We must tame this brute before he discovers that the alterations have been made. Fortunately, I have an anesthetic projector in my pouch."

"How do you happen to be carrying such a device?" Dur asked suspiciously.

Quintus made no answer. Surveying his ashen countenance, Dur's face hardened. Indignation flashed from his eyes.

"Then my first suspicion was correct. The girl did not go willingly. Hand the projector over!"

Abjectly Quintus relinquished the beam projector. He covered his face.

"You cannot know how I have longed for a vibrationally perfect mate!" he moaned. "When she understands, she will be grateful. I am sure of it."

"She will expose you," Dur answered dispassionately, "with her first conscious breath. The penalty, as you know, is euthanasia. Your sentimental excuses will carry no weight with the Equity Bureau."

He turned and spoke to Johnny.

"You must prepare yourself to find your friend much changed," he said gently.

"If this guy's had anything done to her," said Johnny miserably, "I'll make hamburger out of him."

"His case will be suitably taken care of," responded Dur significantly, as the capsule came to a stop.

They hurried to another tube, emerging from it on the upper balcony of a brightly lighted amphitheater.

Tiers of seats were filled with absorbed spectators, midget men with large heads, like Quintus and Dur. In the arena below, a group of similar figures hovered over an object dimly discernible through a maze of instruments.

Johnny's eyes searched the room in bewilderment. Then he caught a glimpse of pink flesh on the operating slab. He plunged down the steps.

HIS onslaught sent the surgeons who had been bending over the outstretched figure flying in every direction. His powerful arms, ripping and rending in a fury of desperation, made a shambles of the instruments. Piping cries of consternation came from the throats of the assembled scientists. Confusion reigned as they struggled in terror toward the upper tiers.

"Ella!" burst from the distorted lips of Johnny, as the motionless, still body of the girl lay uncovered before him. "What have they done to you, Ella?"

In a moment, Dur reached his side. "Careful!" he urged. "You may do her injury." He turned to a surgeon who was dazedly gathering himself off the floor. "You have not yet made the alterations?" he demanded in his own language.

"We delayed," the surgeon apologized. "My colleagues agreed that it would be inexcusable to neglect this opportunity for a complete recording of primitive anatomical structure. The creature's anatomy explains many vestigial organs found in the present-day human system. We were just about to begin the removal of her external abnormalities when this—this impossible monstrosity burst in."

"What's he saying?" demanded Johnny. "Why don't she wake up? If they've killed her—"

"There has arisen a doubt that she submitted voluntarily to the surgery," Dur explained quickly to the surgeon. "Please counteract the anesthetic ray."

A few sectors later, the four—Quintus, Dur, Johnny, and Estrella—stood before the time-space projector in Dur's laboratory.

The girl was still dazed from an experience not fully comprehended. Quintus, subdued and frightened, offered no objection as Dur prepared to send his vibrational complement back to her own time. Perhaps he felt that he was more than fortunate.

"It seems fitting," observed Dur, "that you should take back something as a memento of your visit to our time. Johnny, what object of value in our world, as you have observed it, would it please you most to take with you?"

Johnny's eyes roved the room.

"I'd kinda like to take my ventriloquism book," he said apologetically. "It cost me five bucks."

Dur turned in amusement to Quintus.

"It appears," he commented, "that from Johnny's point of view the quintessence of achievement is to be able to speak in a changed tone of voice without moving his lips."

"Incredible!" murmured Quintus.

"Very well," concluded Dur. "If that is the height of your desires, come with me."

Doubtfully, Johnny followed him to

the tube entrance.

"You gonna leave him with her?" he asked suspiciously, jerking his thumb toward Quintus.

"He has had his lesson," Dur answered grimly. "He will make no more 'passes' toward her, as she so quaintly expressed it."

FOR a few moments after their departure, an awkward silence ensued. Then, rather timidly, Quintus extended a hand containing a gleaming, jewel-like object.

"I was prevented from doing what perhaps would have been a great wrong to you," he said. "Evidently, though our personalities harmonize to the nth degree from a scientific standpoint, there are barriers of physical structure and custom which it would be difficult to overcome. My dream is shattered. Nevertheless it would afford me consolation if you would take this amulet to remember me by."

"Thanks," responded Estrella casually. "I'll keep it for a souvenir. But don't ever come around impressionating yourself on me again. I don't want to get any more funny ideas." She turned uneasily toward the tube entrance. "Wonder what's keeping them?"

"It requires a few sectors, naturally, to reach the Center and complete a delicate surgical task such as—"

"Surgical!" interrupted Estrella in alarm. "You ain't pullin' any stuff like that on Johnny, are you?"

Quintus shrugged helplessly. They stood in uncomfortable silence until the panel opened. Johnny, wearing a broad grin, entered with Dur.

"If you two will take your positions on the platform," remarked Dur, "the simple matter of your return will be quickly accomplished. Unless you have other desires, I would suggest returning you to the exact point in the time-space continuum that you occupied when we drew you into the force-field of this beam. I can approximate it within about three sectors."

"That's an idea," returned Estrella. "Then I won't have to miss my act."

Dur pressed a switch. The force field, with its shimmering, spherically warped beams, sprang into existence.

Within it, a shadowy nucleus at the center faded from view. . . .

OUTSIDE the door which Johnny had closed behind him, the gathered performers and stage hands waited—at first in anticipation, then in bewilderment. They fully expected to hear Estrella raging and storming, with an undercurrent of Johnny's expostulating tones as he tried to calm the injured feelings of the Oomph Girl. Instead, there was an unaccountable silence.

After a moment of tense expectancy, one of the Dancing Devlin troupe edged forward. She opened the door a few inches, then drew back with a gasping exclamation.

"They ain't there! The room's empty."

"You're nuts," growled the manager.

He strode forward and yanked the door open. The crowd surged and strained to see.

It must have been a trick of the light, of course. For a moment there was a shimmering radiance. Then it vanished and Estrella stood swaying slightly in Johnny's arms.

"Whadda you mean, the room's empty?" demanded the manager beligerently.

"Look out, mister. Your pants is on fire!"

He swung around violently, clutching instinctively at his rear, as the impish voice came from behind him.

"Who said that?" he demanded.

"Who d'ya think said it? Open the lid and let me outa here!" came the voice, now muffled, from within Estrella's trunk.

The manager took an involuntary step forward.

"What the heck!" he demanded, checking himself. "Who's pullin' that stuff?"

Estrella stared unbelievably at the trunk. Then, with sudden suspicion, she glanced up at Johnny's impassive face.

"You low rat," she observed feelingly. "So that's what you and him was doing when you stayed away so long you can talk like Dur now."

"Look here," the manager interrupted, remembering his errand. "All I ask you to do, Estrella, is to think things over. You're an old trouser. You wouldn't let the show down. If anybody swiped your cape, I'll make it plenty hot for them."

She looked at him uncomprehending for a moment. Was it many hours ago—or just a few seconds—that she had been raging about the loss of her cape? A glance at the flashing amulet clutched in her palm reassured her.

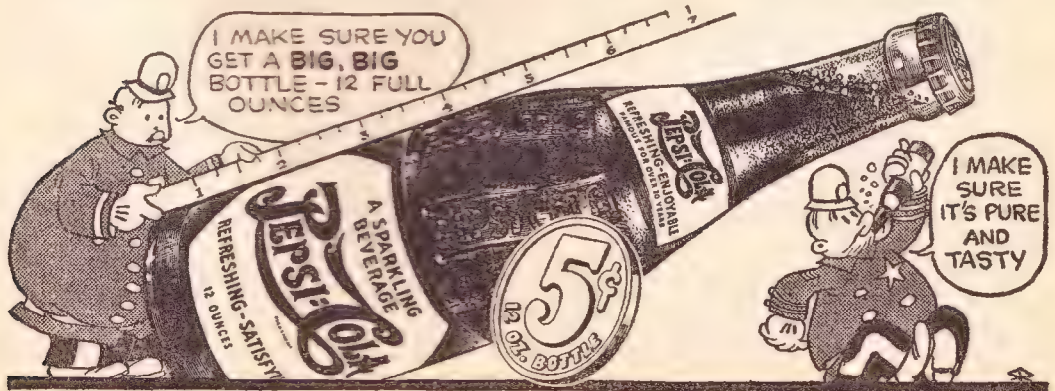
"Look here," she responded. "Don't you know a rib when you see it? This here was a gag to make you take notice of Johnny. What do you want to go wastin' him on a strong-man act for? He's the best ventriloquist in the business."

The manager stared.

"Well," he acknowledged, "maybe you're right. He is pretty good."

A grin covered the face of the big fellow in the leopard skin—covered it almost from ear to ear. But his lips moved not so much as a quiver as a voice came from behind the screen.

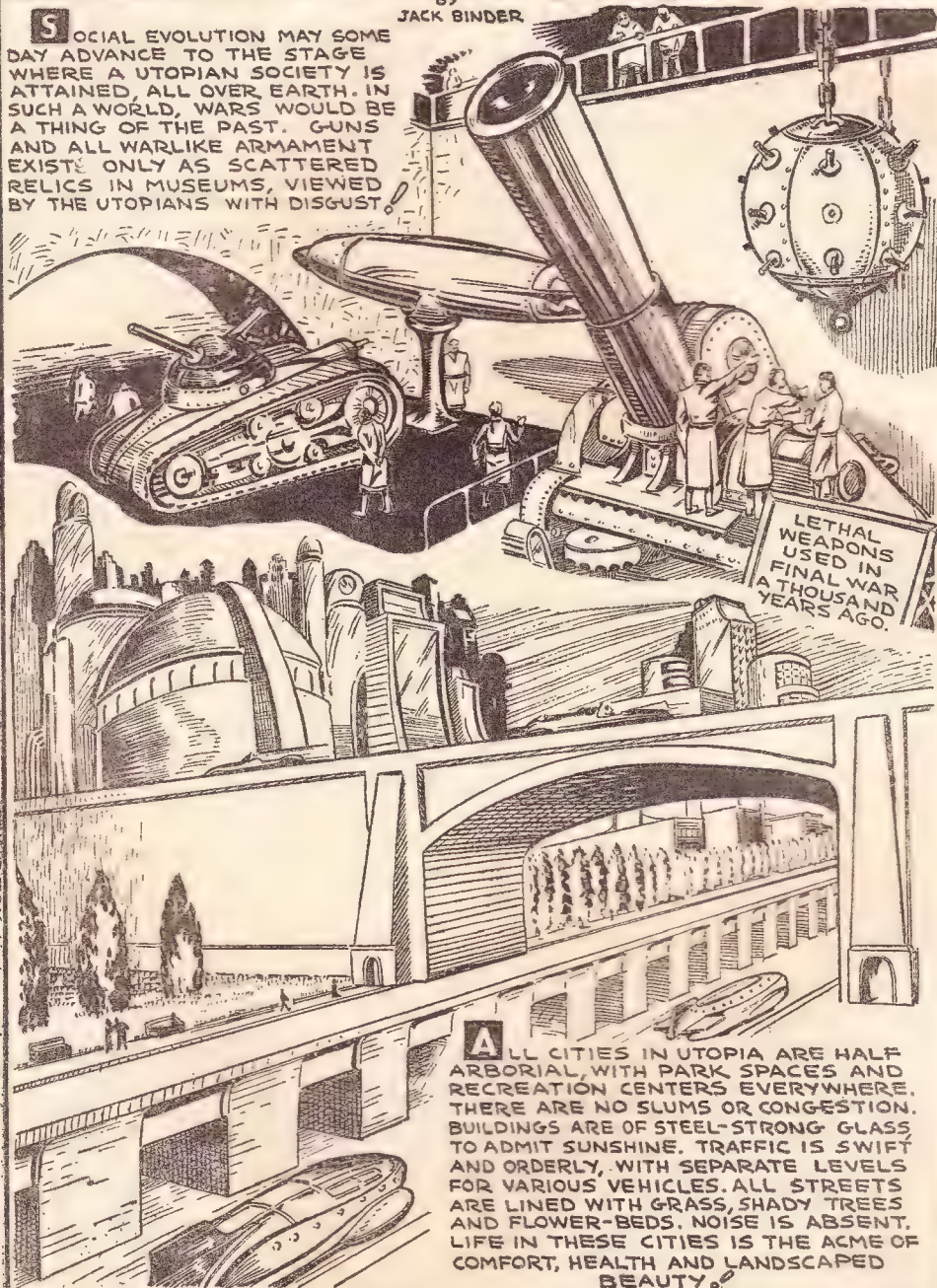
"Pretty good? Hell, you know danged well he's perfect!"



THE UTOPIA WERE ACHIEVED

BY JACK BINDER

SOcial evolution may some day advance to the stage where a utopian society is attained, all over earth. In such a world, wars would be a thing of the past. Guns and all warlike armament exist only as scattered relics in museums, viewed by the utopians with disgust.



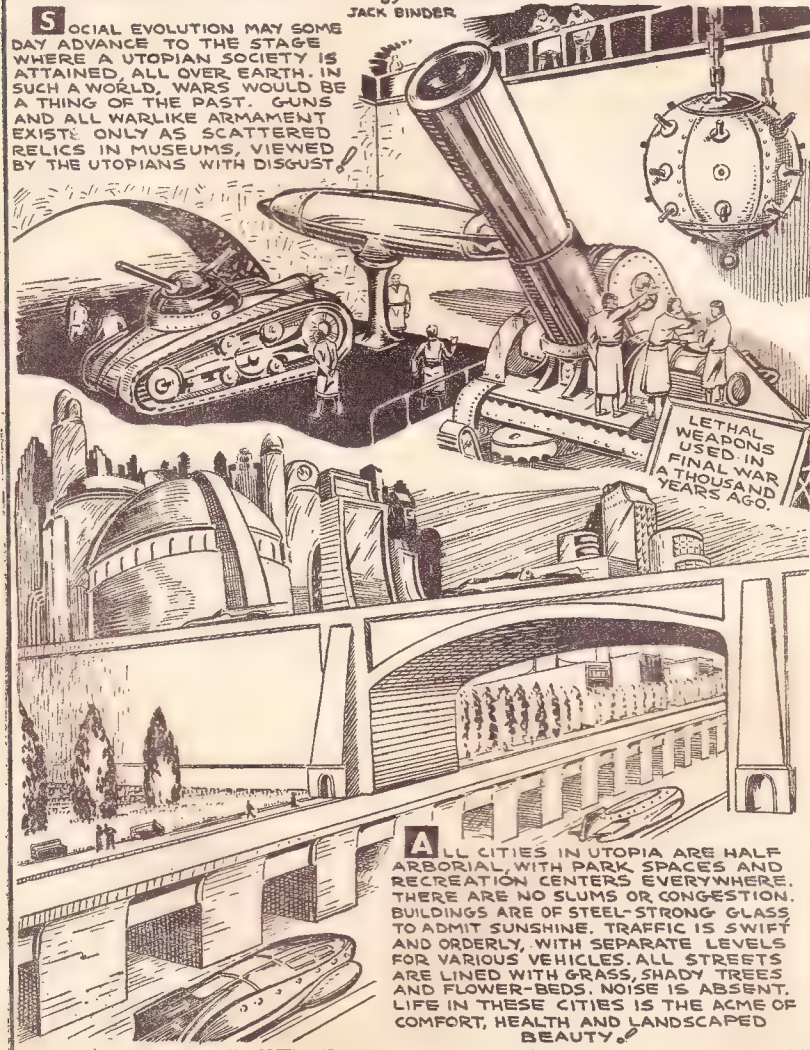
ALL CITIES IN UTOPIA ARE HALF ARBORIAL, WITH PARK SPACES AND RECREATION CENTERS EVERYWHERE. THERE ARE NO SLUMS OR CONGESTION. BUILDINGS ARE OF STEEL-STRONG GLASS TO ADMIT SUNSHINE. TRAFFIC IS SWIFT AND ORDERLY, WITH SEPARATE LEVELS FOR VARIOUS VEHICLES. ALL STREETS ARE LINED WITH GRASS, SHADY TREES AND FLOWER-BEDS. NOISE IS ABSENT. LIFE IN THESE CITIES IS THE ACME OF COMFORT, HEALTH AND LANDSCAPED BEAUTY.

Coming Next Month: IF MAN

IF UTOPIA WERE ACHIEVED

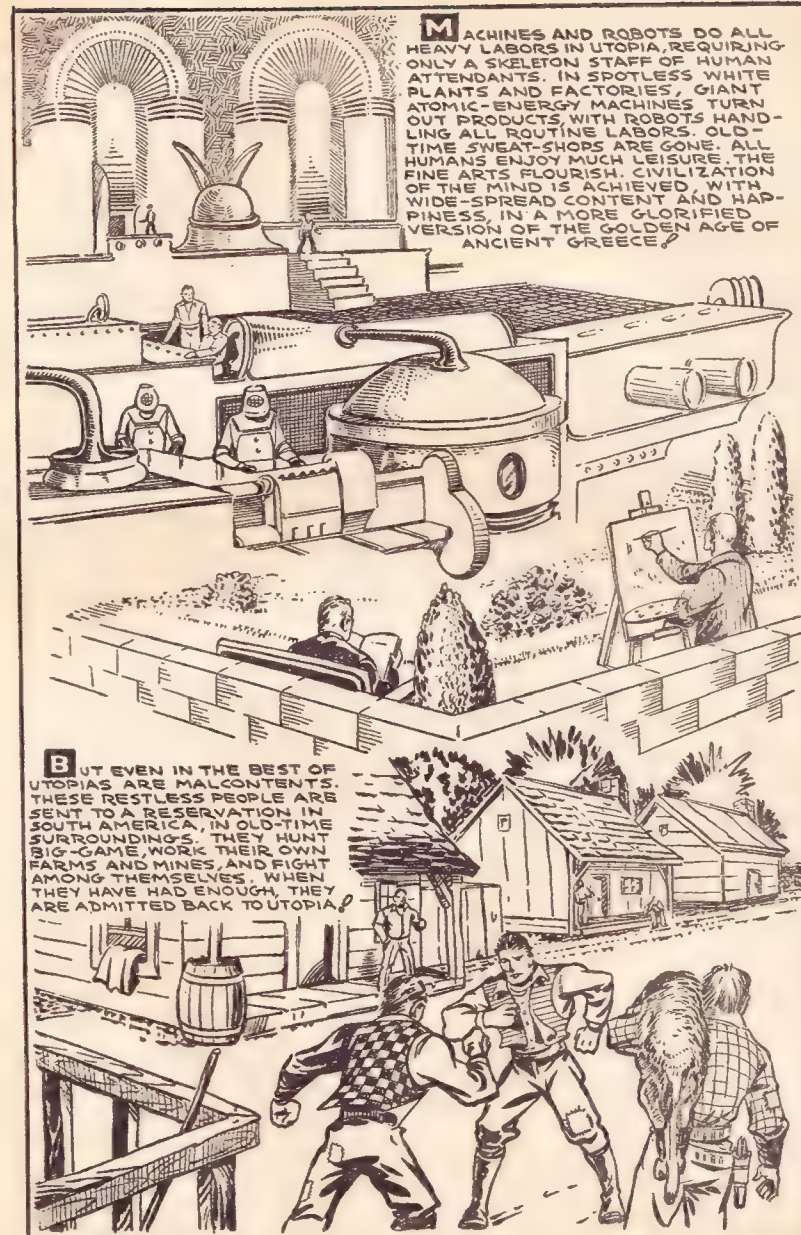
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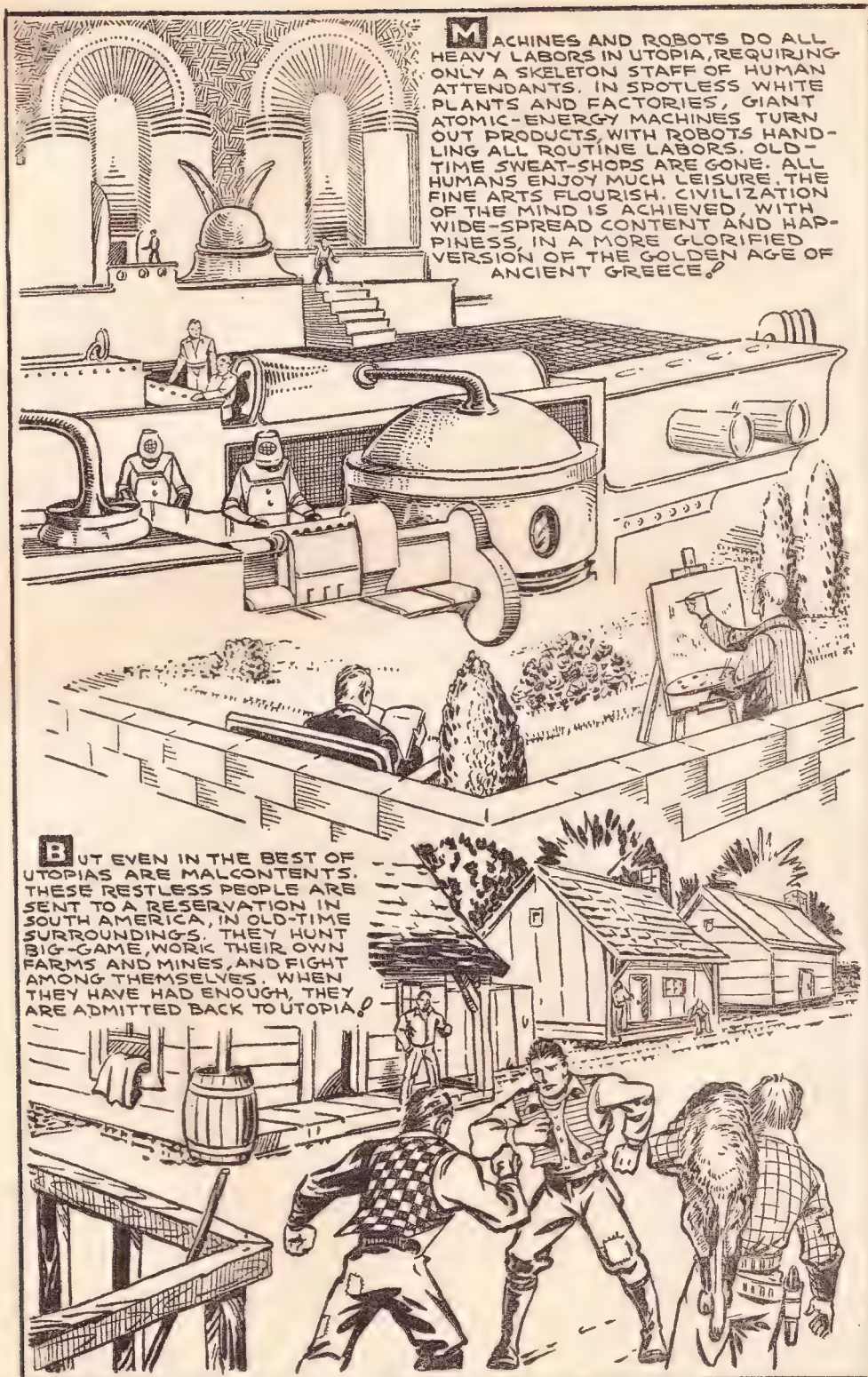
Coming Next Month: IF MAN



MACHINES AND ROBOTS DO ALL HEAVY LABORS IN UTOPIA, REQUIRING ONLY A SKELETON STAFF OF HUMAN ATTENDANTS. IN SPOTLESS WHITE PLANTS AND FACTORIES, GIANT ATOMIC-ENERGY MACHINES TURN OUT PRODUCTS, WITH ROBOTS HANDLING ALL ROUTINE LABORS. OLD-TIME SWEAT-SHOPS ARE GONE. ALL HUMANS ENJOY MUCH LEISURE. THE FINE ARTS FLOURISH. CIVILIZATION OF THE MIND IS ACHIEVED, WITH WIDE-SPREAD CONTENT AND HAPPINESS, IN A MORE GLORIFIED VERSION OF THE GOLDEN AGE OF ANCIENT GREECE.

BUT EVEN IN THE BEST OF UTOPIAS ARE MALCONTENTS. THESE RESTLESS PEOPLE ARE SENT TO A RESERVATION IN SOUTH AMERICA, IN OLD-TIME SURROUNDINGS. THEY HUNT BIG-GAME, WORK THEIR OWN FARMS AND MINES, AND FIGHT AMONG THEMSELVES. WHEN THEY HAVE HAD ENOUGH, THEY ARE ADMITTED BACK TO UTOPIA.

VISITED THE EARTH'S CORE



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HONEYCOMBED SATELLITE

By HELEN WEINBAUM

Author of "Tidal Moon," etc.



The ceiling was giving way!

PHILIP MURRAY nosed his space ship toward the north pole of Themis, last discovered of Saturn's moons. Below toward the lofty, steepled structures of the termite like inhabitants of the tiny satellite, the Cacochauns, who seemed neither to know nor care that Earth-exiled criminals searched their hive for blue amber.

Only on Themis was blue amber

**A Strange Queen Ruled
Saturn's Moon—but
Mortals Were Outside
of Her Dominion!**

found—and there only in the Cacochaun hive—for the inner element was so perishable that it oxidized in air, leaving a dull, blue powder. In the honeycomb, however, live particles had been covered by exudations from

the Cacochaun's pores. Thus preserved by the fossil resin, it had lain for centuries undisturbed, until a space traveler taking a few pieces to Earth had discovered that by using it as the plate in a vacuum tube, short waves far below the normal range might be received.

Now, by means of vacuum tubes containing the blue amber, Earth was able to keep in constant, secret communication with her possessions—Saturn and all her moons, Uranus and Venus. Enemy powers, through lack of the element, were unable to catch waves far below the sensitivity of their receivers.

A little thing! Yet on it now rested the fate of the tiny planet, Venus. For Mars, the little Napoleon of the Universe, had ambitions, and it was well known that her eye rested longingly on Venus—Venus with her vast platinum mines and coal fields!

Let Mars come into possession of the element, blue amber, and create a tube delicate enough to catch the short wave messages from the experimental laboratories of Earth directing the placement of Venus's new defenses, and the cause was lost!

Lately, shipments of blue amber had fallen off. The Government of Earth, fearful of leakage to the enemy power, took steps at once to investigate conditions in the penal colony of Themis. The job fell to Philip Murray.

Outside of the Cacochauns, there was no civilization on the satellite. No one knew the engineering secret of the underground combs, stretching endlessly beneath the minarets and spires which towered like a frosted wedding cake from the forty-mile diametered satellite.

The civilization within the honeycomb was a matriarchy, the whole brood offspring of the Queen, a huge, inert egg-laying machine who ruled telepathically from an inner cell. Under the Queen were four castes: the first, fertile males whose sole function was to cohabit with the Queen; the second, a food producing type on whose bodies grew strange fungus sprouts; the third, farmers who gathered the sprouts and brought food

from outside as well; and the fourth, workers, the builders of the honeycomb itself.

On all Themis there was but one hive, one Queen, one civilization.

This, then, was the world to which Philip and Christine Murray came—certainly no place to spend a honeymoon. But the Government order to check on the dropping off in shipments of blue amber had come so soon after their marriage, that Christine had insisted on accompanying him.

"I married an adventurer," she said. "High time I found out how one does adventuring."

NOW, stepping from the landed ship, Philip looked admiringly at her slim figure in the short, flared leather skirt and tight leggings.

"Brrr." Her teeth chattered, despite valiant efforts to control them.

"Didn't you oil your face?"

She shook her head, made tiny by the close fitting helmet, raising her green eyes sheepishly.

"No. It was such nasty stuff."

"Nasty or not," he said sternly, "it keeps out the cold. Put a thick layer on immediately! It's better than having your nose frozen! I'm afraid, Chris," he continued, "you're going to be a lot of trouble. I should have left you home."

"Don't be mean, Philip. I'm still a bride. Besides, you take Toto everywhere."

"Toto doesn't eat, at any rate. He gets his nourishment from air and rain."

He patted the queer, three-legged pup bounding excitedly at his feet, smiling at the monkey face crowned with huge rabbit ears which perched saucily atop a pyramid-shaped body.

"Totodozeneat," the pup squealed, cocking one ear and rolling large black eyes. "Totodozeneatatanyrate—Totodozen—"

"Sh!" Toto shut up; it was the only word he understood. Released from the confines of the space ship, the pup bounded on his three legs, bringing his circulation to where it could withstand the terrific cold of the satellite.

Christine, her face now shining with

a thick coat of the cold resistant oil, looked curiously about. This was her first trip through space.

"Look at the horizon!" she exclaimed.

"It's right next to us. It's like standing on the bottom of an upside-down bowl."

"Of course, silly. The whole circumference is only some hundred and twenty miles."

"Ofcoursillythewholehundred — ofcoursillythewhole — is—twenty — ofcourse—"

"Oh, Toto," she laughed as she picked him up. "You're all bawled up. Now shush!"

Philip set the electro-magnetic time-lock on the space ship for two Themisian days and carefully closed the door.

"Why bother?" the girl asked. "We may be through sooner."

"It's the surest way to keep current flowing through the lock," he answered. "Don't forget, this is a criminal colony, and some of the fellows may be a little tired of Themis. They're all here for life, you know. A nice unlocked space ship might be too much of a temptation."

As they walked toward the barracks, his rugged face sobered at thought of the investigation which lay ahead. The only non-criminal here was Sime Conner, Governor of the satellite. He managed the exiles—not too hard a task, as there was little choice between working in the Caco-chaun hive and eking out an existence in the wastes of Themis—but if shipment of blue amber had fallen off, Conner must be responsible.

BY the dim light the room at first looked empty. But as Philip's eyes grew more accustomed to the gloom, he saw a loose, slovenly figure slouched over a table at the far end. Surely this could not be the slim, fastidious Governor whom he had met some years ago. But yes, something in the face was familiar.

Leaving Christine just inside the door, he walked toward the man, his voice booming briskly, his lean, wind-toughened features in sharp contrast

to the Governor's sagging jowls.

"Hello."

"Hellohellohellohello—" T o t o squeaked.

Startled, the man raised bleary eyes. "Who are you?"

"Philip Murray. I was here a few years ago. Remember?"

"No." The man tipped a filthy, half-filled bottle to his lips. "What's that?" pointing to Toto.

"Just a pup from Callisto. He's harmless."

"Ugh." The man grunted, wiping his loose lips with the back of one hand.

Removing his heavy outer garment, Philip sat down, stretching long legs before him. Sime Conner watching his every movement through narrowed, suspicious eyes.

"Well, wadda ya want?" he growled. "Not just stopping here for a visit, are you?"

"No. I've been sent by the Inter-planetary Division of the Government of Earth."

"Whafor?" Conner took another drink and looked up blearily. "Wadda they wanna know? I'm doin' my job, sick as I am."

Philip glanced pointedly at the bottle.

"Doctor's perscripshun," Conner said defensively. "I gotta drink the stuff. He said so."

"Who said so?"

"My doctor—Shrimp. One a the crinnuls here."

"Oh. Well, Conner," Philip leaned forward, "I'm afraid you're *not* doing your job. Shipments of blue amber have fallen off to nothing."

"Thassa lie!" The man rose swaying to his feet. "I'm doin' my job as well as anyone could in this God-for-saken Hell."

"Sit down and talk, Conner!" Philip spoke sternly.

The man obeyed.

"What's the matter with production?" Philip continued more kindly. "That's all I'm here to find out. Surely the combs aren't dry of blue amber—"

"Surelythecombsaren'tdry—" Toto squeaked. "—surelythecombs—"

"Shut that thing up!" Conner

screamed. "Nothing's the matter with production!"

Philip rose. They were talking in circles.

"I'll have a look around the combs myself. Maybe I can find out what's wrong."

The burly figure of Conner blocked his way.

"No visitors allowed," he growled. "I'll give you a report for your sainted Government."

Philip waited as Conner sank into a chair and rubbed a hand over his forehead.

"Report"—Conner paused—"I wish the Shrimp was here," he said weakly. "I can't remember what he told me about—" He stopped abruptly, looking up slyly to see if his words had caught.

"Who's in command?" Philip asked impatiently. "You or the Shrimp?"

CONNER took another drink. "I am. But he's a smart fellow. Helped me a lot. Donno what I'd do without this medicine—distills it for me himself—from the shrubs of—"

"Give me the report," Philip interrupted. "Why aren't you producing blue amber?"

"Sa long story. Can't you wait for the Shrimp? He'll explain how the men won't work and—" His voice trailed off.

Philip rose angrily. "No! I certainly can't wait! Sit here and swill your—medicine!" He stared toward the door.

Conner grasped his arm and swung him around, putting his bleary face close. "Tha's treason!" He straightened swaying. "I'm Governor here. Tha's just tha same as King. Apologize for your tone of voice!"

"My apology is—this!" Philip swung. Conner fell—

"Nice work."

Philip looked up to see Christine beside him. For the moment, he had forgotten her.

"Nice to now you approve." He rose, straightening his clothes and walked with her to the door.

"I know," she said, "don't tell me. I'm a nuisance."

"Right." He tried to pinch her cheek, but his fingers slid off its oily surface. "What *am* I going to do with you? You certainly can't stay with *him*."

"Where are you going? I'll go with you."

"You won't like it, baby," he warned. "I'm going into the honeycomb."

"It sound lovely, just like—" She stopped abruptly, pointing ahead.

A giant, featherless bird, its long spiked tail curled forward between its feet, blacked the sky. Quickly Philip pulled her down to the ground. An instant later, the bird whizzed over, its sharp forked tail missing their bodies by inches. For a moment more they lay quietly, then cautiously, Philip raised his head. The bird had turned! Flying low, its forked tail cutting the rubber shrubs like so much paper, it beat toward them again.

Philip fumbled for his gun and, firing almost on the draw, rolled aside, pushing Christine out of range of the crashing body. Toto let out little squeals of fear.

"Don't be a baby, Toto," Christine admonished in a trembling voice. "This is how an adventurer adventures. Look at me. I'm not scared."

"Must have been a Black Drongo," Philip said grimly, "a Themisian species of Drongo-shrike."

His skin tingled with crawling mites, picked up from contact with the ground. Hastily he pulled Christine to him, wiping first her face with his glove and then his own, fearing some among the parasites might be the lichen leech, a fungus growth, part plant, part animal, which attached itself to the second caste of Cacochauns. The cold resistant oil might keep them from taking root. He hoped so anyway. On humans, the lichen leech was fatal.

THE only entrance to the Cacochaun hive was at ground level, though windowless towers stretched some five stories upward. Cacochauns, a man-sized species of termite, crawled on six legs with their bodies parallel to the ground. To enter the hive Philip and Christine had to get down

on all fours. Once through the entrance, however, it was possible to stand erect. Compared to the outside temperature, the air was hot.

The cell in which they found themselves had a slanting floor triangular in shape. Its walls and ceiling were spotted with the green flares of electric malops which clung by means of suction pads on their stomachs. Their eel-like bodies formed a broken circle, the head a few inches from the tail. Across the gap sparks leaped, filling the interior of the cell with a greenish brilliance.

"Don't touch them," Philip warned, putting Toto under one arm for safety, "unless you want to get electrocuted."

"Don't worry," she answered indignantly. "I think they're horrible."

In the next cell they came upon a man lying on his back, leisurely dangling one ankle in the air. The floor was wet with the not yet hardened exudation of the Cacochauns, but he seemed unconscious of the sticky mess in which he lay. At their entrance, he jumped up quickly.

"How did you get in?" His voice was angry.

"The usual way," Philip answered. "Any objections?"

The man's manner changed suddenly; his voice was oily smooth.

"Of course not. It's just that we have visitors so seldom." His snappy black eyes dwelt curiously on Christine and Toto. "You took me by surprise. A collector, I suppose?"

"A collector! Supp—" Toto began.

"Don't mind him," Christine said. "Sa-ay. You don't look like a crim—"

"I'm not a collector," Philip interrupted loudly. "I'm here on another mission." He glared at Christine from the corner of his eye.

The man smiled at his embarrassment.

"The lady is right," he said suavely. "I am not a criminal. I am a scientist—Dr. Charles Waite. That is, I was Dr. Charles Waite. One loses identity here. They call me Shrimp."

"Oh." Philip stared satirically. "You're the one who prescribes for Conner. He seems to depend a lot on you—on liquor too!"

"I do what I can for him," the doctor answered. "That's more than the others do. I'm surprised at myself sometimes. After fifteen years in this Hell, one *should* lose the milk of human kindness."

"Fifteen years," Christine murmured. "That's a long time."

"A long time," the doctor mused. "A long time to pay for an error."

"An error," Philip repeated incredulously. "What error?"

"I killed a woman."

Christine drew back.

"But death through error," Philip objected, "or in the interests of science—I thought men were exiled to Themis only for premeditated murder."

"It was that stupid, dull-witted jury," Dr. Waite answered. "They couldn't see it. I was going a great work of research, of inestimable value to the world." His voice was matter-of-fact. "But I needed money to continue, so I killed my wife—for her insurance. However, it was *all* in the interests of science. I even killed her scientifically—a new virus I had discovered. Quick and painless."

Christine tugged at Philip's sleeve. Obviously, her eyes said, he's a little touched. Let's get away.

Dr. Waite put a hand on Philip's arm, his voice suddenly soft, sane—that of a kindly man trying to help.

"Why are you here?"

"To inspect the honeycombs. I represent the Interplanetary Division of the Government of Earth."

"Hum," the scientist said thoughtfully. "An official visit! Well," he shrugged, "let me take you through. The honeycombs are complicated for a stranger."

STEPPING carefully to keep from falling on the slimy floor, they entered the next cell. Six men knelt in a circle, picking earnestly at a cleared space in the center. Beside them lay two blue ambers, their fire-stabbed brilliance startling against the dull floor.

At their entrance the men looked up.

"Who are they, Shrimp?" one yelled. "New exiles?"

"Visitors." The doctor's voice was steely. "Get back to work!"

There was no doubt, Philip reflected, as to who was in command inside the honeycomb.

"I got the impression from Sime Conner," Philip said slowly, "that the men wouldn't work. He said you'd explain more fully why Earth is receiving such meager shipments of blue amber."

The scientist shook his head. "It's a hard task he's set me. Under my discipline, the men *do* work. That isn't the cause." He paused, then shrugged. "Well, I suppose I must tell you." He turned suddenly. "Have you ever been in the honeycombs before?"

"No. I've been on Themis, but not in the honeycombs."

"Nononono," Toto squealed, gaining courage in the safety of Philip's arms.

"That," Dr. Waite said softly, "puts a different face on the matter."

"Ugh!" Christine gasped in disgust.

A huge, wet, red Cacochaun had entered from the next cell, drawing its heavy body across the floor on six fleshless legs. Long, furry antennae waved slowly as its iron-strong jaws opened and closed with every step. Toto squealed shrilly. The Cacochaun continued unperturbed on its way, noticing neither the strangers, nor the chattering of Toto.

"It's maddening," Dr. Waite said. "They act as if we weren't here. There are thirty-one men in the hive right now, but they pay no attention." He brushed his tousled hair excitedly. "To be ignored so completely by slimy, filthy Themis monsters—it's too much to bear. I'd like to kill them!"

"Personally," Christine put in faintly, "I'd rather not be noticed."

At the sound of her voice, the man calmed.

Unerringly he led them through a maze of cells, turning now right, now left, until his companions were entirely confused. Each cell was identical: the triangular sloping floor about ten feet on a side, slippery with Cacochaun exudation, and the walls and ceilings brilliant with light-giving

malops. In some cells Earth exiles worked in the scum. Through others Cacochauns passed carrying food in their strong mandibles to the newest brood of the Queen. At an unoccupied cell, the doctor paused.

"As you already suspect," he began abruptly, "blue amber is being stolen."

Philip paled.

"But as yet none has been sold to Mars," the doctor continued softly.

"How do you know of Mars' expansion policy? You've been here fifteen years—"

"Collectors talk," Dr. Waite answered. "But as I said, the stolen blue amber is still on Themis. You see, Sime Conner has had no way of leaving—until now!"

"Sime Conner!" Philip grasped his arm excitedly. "And by 'until now' you mean in *our* space ship." He turned quickly and started back through the combs.

"Wait, my friend." The doctor's voice was oily. "Your space ship is safe for a time. Sime Conner will not leave without the blue ambers—and he does not have them now. *I know where they are!*"

"Where?"

"Wherewherewhere," T o t o repeated.

Dr. Waite glared at the pup. "You'll have to keep *that* quiet, however, or you'll never get past the guards. In fact, it's too great a risk for more than one to try. You'll have to go alone."

CHRISTINE stared incredulously.

"Do you mean to say Sime Conner has *men* guarding the blue amber he has stolen?"

"Not men," the doctor answered, "Cacochauns. And they're not guarding the blue amber, but the cell of their Queen. Sime Conner chose his hiding-place well. And don't let their chant confuse you." He turned back to Philip. "It's meaningless. In fact, I doubt that they know why they chant or what they protect. The only thing they do know is to keep anything but Cacochauns from entering the Queen's cell. That's a natural instinct to assure perpetuation of their race, for all eggs come from the Queen."

"And where's the blue amber?" Philip asked.

Stooping, Dr. Waite traced in the slime of the floor a diagram of small triangles fit together to form an inverted triangle, the bottom point resting on a small circle and an arc reaching from the right top angle to the circle.

"The blue amber," he said slowly, "is behind the stone bearing this symbol in the ceiling of the Queen's cell."

"In the Queen's cell," Christine repeated. "Won't *she* object to Philip's entering?"

"The Queen sleeps soundly," Dr. Waite answered.

As they went farther into the combs, it became harder to get a foothold in the slime of the sloping floors. Often they caught themselves just about to put a steady hand on an uncoiled malop, for unless the malop's head was within a few inches of the tail, the green sparks of warning did not flash. Let a man touch either end, however, and instantly the other end flipped around, sending hundreds of volts of electricity through his body.

In the lower depths, Dr. Waite stopped, covering his face and hands with lengths of material he brought from his pocket.

"In the next few cells are the second caste of Cacochauns," he explained, "the ones with the lichen leech growth. Don't expose any part of your skin to the floating spores. If one touches you—" He shrugged.

Through the mesh of the material covering their eyes, they got a hazy, repulsive glimpse of the fungus-covered Cacochauns. Christine clung to a fold of Philip's coat and Toto chattered in the unwonted darkness beneath it. At an empty cell they sighed with relief and started to remove their coverings.

"Don't!" Dr. Waite yelled suddenly. "Leave them on!"

With a slush of dragging feet, a lurching, fungus-covered form approached. If the Cacochauns were repulsive, this creature was far more so. Half bloody splotches, half long fungus ferns which waved feebly as he walked, beneath his loathsome exterior

he was, unmistakably, a man.

Christine gasped and drew nearer to Philip.

At sight of the strangers, the man laughed wildly, tearing the long, furry growth out by the roots and throwing it madly about the cell, leaving his skin torn and bleeding beneath. Suddenly he calmed and came closer.

"Scratch me," he pleaded. "Scratch my back. It itches."

"Kill him," Dr. Waite whispered. "Kill him, if you have a gun. He's mad from the itching."

It was the humane thing to do. But until the repulsive fungus-covered arm reached to snatch the covering from Christine's face, Philip could not bring himself to move. He turned his gun outward, firing through the cloth of his garment.

"He would have died soon anyway," Dr. Waite said, "as soon as the roots reached his heart. Besides, if he hadn't escaped, we'd have done away with him before he got so bad."

A LITTLE farther on, Philip drew Christine aside.

"When you leave me," he whispered, "go straight through the honeycomb and wait at the space ship. I won't be long."

As he pressed his gun into her hand, he saw her eyes glisten with adventure.

Now a faint sound reached their ears, a sound starting high in the scale and going down note by note, each one sustained a shorter time than the one before.

"The chant of the guard," Dr. Waite said.

Fascinated, Philip listened. As he had no knowledge of the Cacochaun language, the chant was meaningless, yet strangely he found himself counting the beats. On each new note it lessened by two, until finally it reached a beat of one. Then, without pause, it started over in the shrill note of its beginning, holding it for sixty-one beats. Each beat was a long *ck* sound, coming strangely liquid from the larynxes of the Cacochauns.

As they advanced and the chant grew louder, a picture formed in Phil-

ip's mind—the diagram of the inverted triangle formed of triangular cells by which Dr. Waite had said he could identify the hiding place of the stolen blue amber.

Before he could satisfactorily find an explanation, the scientist broke his thoughts.

"We must leave now. The guard cell is very close. Keep bearing right and you can't miss it. Now, in order to pass through, you must distract their attention. Throw something alive in their midst—that pup of yours will do—while they are occupied, walk through behind them."

"Thatpupofyours," Toto squealed gleefully, "thatpupofyourswilldo—that—"

Philip turned on Waite angrily. "If that's the best suggestion you can make—"

"He'd just as soon throw me," Christine said.

The scientist shrugged. "Well, if you want to risk it, use an uncoiled malop. But you'll have to throw it quickly."

As he turned to leave, it occurred to Philip to wonder why he was taking the trouble to expose Sime Conner's thievery. What could he, a life exile, hope to gain from helping the Government?

"There is no reprieve from a murder sentence," Philip said. "Why do you trouble yourself with the affairs of Earth?"

Again Dr. Waite shrugged, darting his small, black eyes into Philip's.

"Sime Conner is free," he said. "Every day I look at his fat loathsome face and think 'Sime Conner is free, I am not.' For that I hate him. Sime Conner can leave this filthy, Cacochaun infested satellite whenever he chooses, and he does not leave. For that I despise him. And Sime Conner has abused his freedom. For that I expose him."

He beckoned Christine to leave.

"Don't forget what I told you," Philip whispered to her. "Wait at the space ship!"

"I will, honey." She patted his arm reassuringly. "But hurry." She looked distastefully at Dr. Waite's back.

It took but a few minutes to traverse the remaining cells. As the chant grew louder, Philip again counted its beats, and again came that strange picture—the inverted triangle formed of triangular cells.

Now, on the low notes, the beats were few. Soon would come that triumphant bass growl which meant the end. Involuntarily, Philip thought of the bottom point of the triangle resting on the circle. Strange that that picture should keep recurring to his mind. Suddenly he looked up to find himself at the guard's cell.

Four Cacochauns lay on the sloping triangular floor, their jaw moving quickly with the *ck ck ck* beat of the chant.

PICKING his spot carefully, Philip grasped an uncoiled malop from the wall, hurling it quickly into the cell. As one the Cacochauns ceased their chant, and before the writhing malop had a chance to bring its two ends together, all four had sunk their mandibles into the black flesh.

Hurriedly, Philip entered, stepping carefully behind them—but half-way across, Toto wriggled from his grasp. The near Cacochaun turned, snapping viciously at the small pyramid shaped body. Philip kicked the under part of its neck, sending it crashing against a wall, and quickly picked Toto from the floor unharmed. But now the three others were upon him, snapping at the leather of his shoes, tearing at the thick cloth about his legs.

It was almost hopeless, to fight four Cacochauns without a gun and with Toto wriggling and squealing in his arms. Kicking madly, Philip stunned two, but the first had come to life behind him and fastened its mandibles in the flesh of his leg. Unable to move for the pain, he stood helpless for a moment, until with a mighty effort he twisted his body free. Then, seizing an uncoiled malop he hurled it at another Cacochaun.

There was a sharp crackle as the malop made connections. The smell of burning flesh filled the cell. The

Cacochaun writhed and twitched as the electric charge went through him. For the moment there was only one more to be dealt with. Philip threw another malop and, hardly waiting to see whether it hit its mark, limped into the next cell, nerves tensed to meet whatever danger it had to offer.

On a circular dais centered in the triangular floor lay the most repulsive monster he had ever seen—a giant orange and black striped Cacochaun. The thick, furry antennae slowly waved their four-foot lengths. The six legs, covered with coarse black hairs, were dwarfed by the fat body. Despite the movement of her antennae, the Queen was sleeping. For the moment, there was no danger.

As he set Toto down that he might better search the diagrammed stone in the ceiling, Philip's eyes were caught by a rich, fire-stabbed blue light in the filth and slime of the floor. Gently, he picked it up, almost fearing to touch its beauty and, for a moment, lost consciousness of his surroundings in contemplation of its magnificent color.

At last, drawing his eyes away, he dropped the blue amber in his pocket. Here was his first evidence, probably lost from the loot of Sime Conner. That thought brought the business at hand to mind and he raised his eyes to the ceiling to search the marked stone.

At the moment, few malops gave their greenish sparks, and he strained his eyes upward in the half gloom. Then at last he saw it—the strange, inverted triangle with one side embraced by an arc—just as Dr. Waite had drawn it.

But, it was in the part of the ceiling directly over the Queen. *And the only way he could reach it was to stand on her dais!*

Tiptoeing over he mounted carefully. Hastily he searched his pocket for a knife. He had a feeling of distaste for what he was about to do, but he overcame his reluctance, and when the knife struck an obstruction he pushed harder until it brought down from the crack a heavy, wire handle.

From beside him he heard an angry *ck ck*. The Queen had awakened! Hurriedly he pulled on the wire, not

anxious to feel her mandibles bite his flesh—the wound from his last encounter still pained him—and, as the stone did not move, used all the strength he had in him.

And then it gave! He reached for the cache of blue amber. But the space above the stone was—empty! A second later there was a sickening crack. The ceiling was giving way—quickly widening cracks spreading across it!

HELPLESSLY he watched, hearing the patter of small rocks as they fell. From above came creaks and groans, and finally heavy, dull thuds as tons of rock came thundering down. The whole honeycomb was collapsing!

Toto ran wildly, chattering in terror as rocks crashed around him. At last, giving a frenzied leap, he landed in Philip's outstretched arms.

Then, for the first time, Philip became aware that the dais on which he stood was sinking—another proof of the engineering genius of the Cacochauns! For the stone he had removed must be the keystone of the hive, on which all the cells and towers above were dependent for support. Hopelessly he remembered Christine and wondered if she had been caught in the crumbling comb. But there was little time to think.

Even as the cell walls gave, the dais with the Queen, Toto and himself upon it was below floor level. A heavy door closed over, shutting out sight of the ruined combs.

In the dark sub chamber they could hear the crack of falling rocks; the ceiling shook with the weight upon it. But it held!

Cautiously, he stepped from the dais, feeling for solid ground before he shifted his weight. Behind him the Queen clucked angrily and Toto, frightened in the damp darkness, imitated her *ck ck ckk* in his squeaky voice.

Aside from the angry Queen, there was danger in staying too long in the sealed sub chamber with no way of getting air.

He stood helpless with anger as sud-

denly the thought dawned that he had been tricked! Dr. Waite had known that by removing the keystone he would collapse the whole honeycomb. Sime Conner had no cache of blue ambers— No, worse! He *had* one— *But it had never been hidden in the Queen's cell!*

As soon as the time lock on the space ship opened, Sime Conner and Dr. Waite would escape to Mars and sell their blue ambers to the enemy power.

And Christine! Christine was either dead—buried in the debris of the collapsed hive, doomed to flee with a drunkard and a murderer to a strange planet—or—worse!—left alone, the only human thing on Themis! For all the convicts must have died in the ruined honeycomb.

His racing thoughts drove him mad! In helpless anger he paced the cell. Yet—yet—there was—there must be a chance.

Feverishly he covered every inch of wall surface with his bare hands, wishing at least one electric malop had come down with the sinking dais to give him light. He found no opening in the smooth circular walls. Still, there *must* be some way out! Of what value was it to protect the Queen, if she and her potential brood must starve in this sub chamber? Despondently, he calmed himself and tried to think.

As the constant *ck ckk ck ckk ckk* of the Queen penetrated his consciousness, the chant of the Cacochaun guards recurred to his mind and he remembered how the diagram of the inverted triangle had haunted him at the sound of it. Suddenly the reason dawned. He slapped his knee at its simplicity.

The guards' chant was a sound picture of the hive's construction—a sound picture of the symbol on the keystone! The chant had sixty-one beats on the first note; the diagram had sixty-one triangular cells across the top. Each graded down to one: the last beat of the chant; the last triangular cell—the Queen's chamber.

Now he was getting somewhere! The circle on which the bottom point of the triangle—the Queen's cell—

rested, was, of course, this cell. His solution was here. He had only to find it.

A GAIN he retraced the sequence in his mind: the chant, the keystone, the diagram. And then, simultaneously, he remembered both the unexplained mystery of the construction of the honeycomb from the bottom up and the arc on the diagram enclosing one angle and the bottom circle.

Now he had it! He was almost breathless with excitement! The arc represented the curvature of Themis, and the combs, instead of going straight down to the interior of the satellite, had been built on a chord of the sphere, parallel to and only slightly below the surface. As the diameter of Themis was only forty miles, a chord near her pole must be far less. Accordingly, this cell *must* be at the surface on the opposite side of the sphere from the towers of the honeycomb. This was the cell from which the Cacochaun builders had started!

He started to rise to go over the wall surface once more, putting a hand on the floor to keep the weight from his wounded leg, but he stopped short as he felt regular indentations beneath his fingers. He traced them carefully. It was the keystone symbol, the inverted triangle embraced by an arc.

Breathlessly he ran his knife around the edges of the stone, hoping against hope to meet the obstruction which meant a handle. At last he found it, a heavy wire which rose with the pressure of his knife. He pulled with all the strength he had in him until, at last, the stone moved.

Beneath it a narrow passageway ran parallel to the cell floor. If his deductions were correct, it would slant upward to the surface farther on. That was his only hope!

Behind him the Queen clucked angrily, filling the cell with her rumbling sounds. There was the sound of movement as she raised her fat body and descended from the dais.

Hastily he pushed the chattering Toto into the passageway and, crawling on all fours, followed. The Queen was behind him. He could feel her

heavy jaws snapping at the soles of his feet!

He pushed on desperately, and at last found himself in the freezing outside air.

The Queen emerged behind him. Still clucking in anger, she snapped at his feet. He strode a few steps away to pick up Toto, confident that she could not approach his speed with her heavy body, and started across the surface of the satellite.

He hurried in the direction of the pole, tripping sometimes in the brush, moving his feet quickly to numb his mind—to keep from wondering whether his wife, Christine, were alive or dead—and if alive, whether the space ship were still there to take her from this unlucky moon.

At last, after what seemed years of running, he saw a pile of debris on the near horizon. A pile of debris! All that remained of the minarets and towers of the honeycomb! He ran quickly, hoping against hope, that the space ship was still there.

It was! And standing before it was Christine—alive!

A SHOUT of joy died in his throat as he saw Dr. Waite a few feet away training a gun on her. Silently he crept closer, praying Toto would have no crazy impulse to chatter now and reveal his presence. Then, suddenly, he dropped the pup and dove at the doctor's legs.

Waite went down with a thud, but turning quickly raised both legs, kicking Philip in the stomach and forcing the breath from him. With a strong effort, Philip dove again, and the two men rolled over and over in the scrubby brush. Tired from his hurried trek across the satellite, Philip felt his strength ebbing. Straining, he tried to loose the gun from Dr. Waite's grasp, but he could not. Nor could he spare an arm to knock the man senseless. So, for a moment, they lay, strength pitted against strength, and the one who gave first—the loser!

A figure approached, but Philip could not spare the energy to raise his eyes. Suddenly, Dr. Waite gave a hoarse shout and wrenched his body,

the gun falling from his hand. In a flash, Christine retrieved it and leveled it at the scientist.

"I did it." She smiled at Philip. "I did it with a little pin."

LATER, soaring through space with the only two survivors of the Themisian colony—Dr. Waite tied securely and Sime Conner sleeping drunkenly beside him—Philip tried to piece together the scattered fragments of his knowledge.

There *had* been a cache of stolen blue amber, though the thief had been, not Sime Conner, but Dr. Waite, who, little by little, had taken control of the colony from the weak Governor's hands, urging Conner to drink in order to dull his senses. And Conner, completely under the mad doctor's thumb, had not questioned his instructions to keep official visitors, who might see too much blue amber being found, from the honeycombs until Dr. Waite had been warned. All the while, of course, the scientist had but one aim in view: somehow to escape from Themis and sell his loot to the enemy power, Mars.

Suddenly Philip remembered the blue amber he had picked up in the moment before he had removed the keystone and destroyed the hive. He took it from his pocket, dropping it into Christine's lap.

"Oooh." She cuped her hands around it, fascinated by its fire-stabbed blue. "It's really as beautiful as a jewel. I like it better than a Xanadu stone."

"I hope it's beautiful enough," he said ruefully, "so that the Government of Earth won't remember it's the last she'll ever get." He sighed. "I sure left the Cacochaun hive a shambles—"

Christine's face sobered. "It's always seemed foolish to me," she said, "to wait for the Cacochaun exudation to fossilize in order to get blue amber."

He looked at her through narrowed eyes for a moment.

"Honey, I'll bet you're right." His hand brushed her cheek softly. "There must be a lot of the inner element burried on Themis. All they have to

do is cover it with liquid glass or something before it gets a chance to oxidize. The Cacochaun exudation is only a preservative after all; it's the blue they use in tubes."

"I'm smart," she said impersonally. "I wondered when you'd realize it. Look how I stuck that pin into Dr. Waite. And look how I fooled him before."

"Sa-ay." He tipped her chin up so he could peer into her eyes. "It looks more as if he fooled you. I gave you the gun. How did he get it?"

She jerked her chin away petulantly.

"He took it. When he started dashing through the honeycomb I suspected something wrong. So I told him I'd shoot if he didn't stop and tell me what the hurry was. Then he just took the gun out of my hand and dragged me after him."

"Hm!" Philip tightened his lips. "I see. He just took it. Well, why didn't he just take the space ship then? The time lock opened hours ago."

She winked knowingly at her puzzled husband.

"That's where I fooled him. You see, I didn't want to leave—I thought perhaps you'd been hurt a little when the honeycomb collapsed. I knew you were too smart to get killed—and I insisted on going to look for you. That's why he had the gun trained on me. He was afraid I'd escape."

"Escape? Well, he had the ship. Why did he care?"

"That's how I fooled him." Her green eyes rolled mischievously. "When he asked me if I'd ever flown a space ship I said yes. You see, neither Sime Conner nor he had the slightest idea of how to run one."

HEADLINERS IN THE NEXT ISSUE

READ about the Man of Tomorrow today! For Anton York, the star-rover, lives again—more powerful than ever before, more questing, more omniscient. Roam the spaceways with the immortal scientist as he combs the Universe and searches for the last world!

Eando Binder's new complete novel, **THE SECRET OF ANTON YORK**, marks the return of the mightiest spacefarer the Solar System has ever seen. It's a stirring story of a challenge from the stars and the conquest of the void. You'll find **THE SECRET OF ANTON YORK** featured in the special scientifiction section of the August **THRILLING WONDER STORIES**—with illustrations by Wesso!

* * * * *

SUPPOSE an unknown, uncharted asteroid from the cold abyss of outer space plunged into our Solar System, exerting a gravitational pull on the Earth. The axis of our world shifts—and below zero weather blankets the continents. Would man be able to survive a second ice-age? Read **ICE OVER AMERICA**, a novelet of frozen doom by Ray Cummings, and find out.

* * * * *

HAVE you ever yearned for the power of transforming any object within your reach to gold? It's a gift no Earthman ever owned. But then came Uoi, the Martian. Manly Wade Wellman tells you about him in his fascinating novelet, **THERE WAS NO PARADISE**. It's the story of a man who had the Midas touch—but gold couldn't buy the things he wanted!

* * * * *

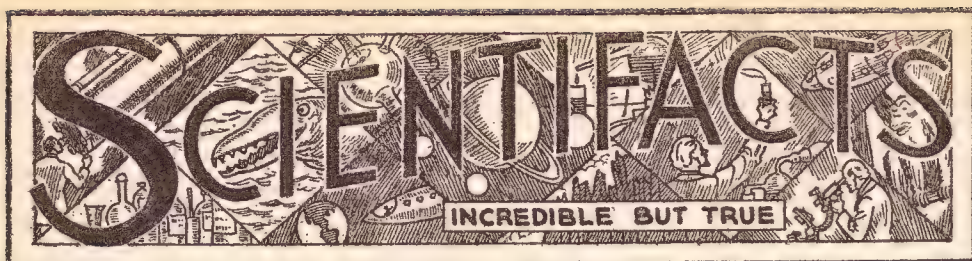
THERE it stands, in the deserted wilderness of the Ozark Mountains, a vast, extending concrete road—**THE IMPOSSIBLE HIGHWAY**. Walk along its miracle surface . . . witness the story of man's evolution, from protoplasmic slime, to the super-man of the future. Who built this road to nowhere? Prizes for the best letters. See details in the next issue. **THE IMPOSSIBLE HIGHWAY**, a contest story of the ladder of life, is by Oscar J. Friend, and represents his most brilliant story to date.

* * * * *

NEXT month's cover story, **NO MAN'S WORLD**, is by Henry Kuttner. It's a story of the populaces of two alien dimensions battling for supremacy, with our world the battlefield, the no man's land of tomorrow. When the scientists of one dimension loose titanic forces at the denizens of the other plane, Earth becomes **NO MAN'S WORLD**!

* * * * *

OTHER five-star fantasy fiction, features and fact by favorites in the August issue of **THRILLING WONDER STORIES**. And look forward to another parade of our regular exclusive features—**IF**, **SCIENTIFACTS**, **SCIENCE QUIZ**, **THE STORY BEHIND THE STORY**, **SCIENCE QUESTIONS AND ANSWERS**, and others.



A SPECIAL FEATURE OF INTERESTING ODDITIES

By MORT WEISINGER

MONEY IN THE AIR

THE United States has a gold mine in the sky!

Dense smoke billowing from a chimney is a sign of waste, due to improper and incomplete burning of fuel. Science



has invented devices which catch fumes from the chimneys of industrial plants—and, in many cases, convert these into valuable by-products.

The chimney of the U.S. Assay Office, in Manhattan, New York City, can be called Uncle Sam's gold mine in the sky. For out through the chimney seeps the smoke resulting from the refining of gold ores. This smoke, filtered, yields more than \$10,000 worth of gold annually! That's quite a sum of money going up in smoke!

GONE WITH THE WIND

SNOW is not always white!

About twelve years ago yellow snow fell on the northwest coast of Japan. It was a scientific mystery until its origin was traced to the yellow dust that had been whirled up from the Gobi Desert in Central Asia and carried in snow clouds to Japan.

Black snow has been known to fall, too. This was no magical phenomenon, but was due to a violent eruption of Mount Etna in Sicily, where dust and ashes had got mixed in snow clouds.

Similarly, rain is not always colorless. Yellow rain, caused by flower-

pollen blown by the wind up to the rain clouds, is a not-so-rare occurrence. And red rain, caused by myriads of tiny little red insects has been known to fall in France, Holland, and elsewhere.

THE COLOR OF BLOOD

THE blood in your veins is not red—but purple!

The arteries in the human body carry red blood. But the veins transport blood that is actually purplish in color. The heart receives from the veins blood which has lost oxygen and become charged with carbon dioxide. Therefore, it is purplish.

The heart pumps this purplish blood into the lungs, and, as we breathe, the purplish blood loses its carbon dioxide, gains oxygen, and becomes bright red.

SALT OF THE EARTH

SALT is nature's most contradictory substance!

It is composed of two elements, sodium and chlorine. Sodium is a metal that burns under water. Chlorine is one of our deadliest gases. Yet the combination of these two elements is indispensable to animal life.

Rock salt is almost as hard as anthracite—yet it dissolves readily in water. Salt helps to freeze ice cream—yet it melts ice. Salt preserves food—but kills plants. And salt produces bleach cloth—but tans leather!

MEN IN BLUE

"MEN in white" is the sobriquet of our hospital surgeons—but they may soon be calling them "men in blue"!

White is the characteristic color of hospital interiors, biological laboratories, uniforms of nurses, coats of doctors—everything is white.

It has been definitely proved, however, that doctors, while engaged in performing long operations, suffer from eye-strain because of the all-pervading white. Some hospitals have experimentally painted their interiors grayish blue, and have donned their doctors with uniforms of a similar color. If the result is satisfactory, we really will have our "men in blue."

BEETLES IN BUSINESS

NATURALISTS require live beetles to help preserve rare skeletons!

An army of 5,000 voracious beetles helps prepare exhibits for the American Museum of Natural History, in New York City.



Since the dried flesh that adheres to fragile and intricate animal skeletons would be extremely difficult to remove by hand, the specimens are placed in a tray with the insects, imported from Asia and Africa. The microscopic jaws of the beetles soon pick the bones clean, and the skeletons are left in perfect condition.

FLICKER MAGIC

SCIENCE makes the wheels go round!

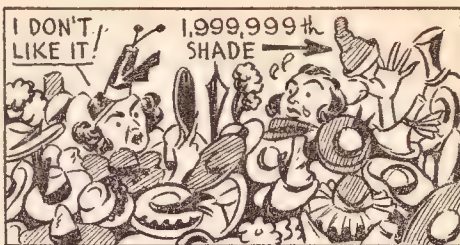
That's true, in more ways than one, particularly when applied to the screen. Everyone has noticed that the spokes of the wheels of an automobile have always moved too fast for a movie-camera. Thus, on the screen, the wheels of a moving car frequently appear to be moving backward.

Science has solved the problem, and Hollywood now can present the real thing. For if a dark paint is applied to four groups of two spokes, equally spaced, and the others painted a light color, the photographed wheel appears to revolve in the correct direction.

SHADES OF MAN

THE human eye can distinguish over 2,000,000 different colors!

Man has the ability to denote differences among more than 2,000,000 col-



ors and shades, it was reported before the joint annual meeting of the Inter-Society Council, the American Physical Society, and the Optical Society.

So far only 7,044 colors and their shades have been tabulated, the scientists report. Our color vocabulary is inadequate, however, for Standard English dictionaries list only about 3,400 words for these 7,000-odd shades.

THIS INCREDIBLE WORLD

IF a nail is driven into a young tree four feet from the ground, the nail will remain four feet from the ground, no matter how tall the tree grows . . . Somewhere in the world, on the average of at least once a week, people get bumped by an earthquake . . . A falling meteorite will strike someone in America about once in every 9,300 years!

The chances of a couple giving birth to quintts are 57,289,761 to 1!

Hop vines and some honeysuckles twine clockwise about a pole, but morning-glories, beans and most common vines always turn in the opposite direction! . . . The oldest land surface on Earth is that of Australia . . . Goldenrod has approximately eighty species in America, only one in Europe . . . A biologist found that the heart-beats in an active squirrel are as many as three hundred and fifty times a minute, but in hibernating ground squirrels the average is only 17!

Scientists report that if wars and arms races continue, the world will face an acute shortage of metal 100 years from now . . . The entire surface of a normal lung is equivalent in area to a strip of land occupied by a house 31 feet square . . .

The human eye, according to latest computations, has some 137 million nerve-endings. . . .

TANGLED PATHS

By **RAYMOND Z. GALLUN**

Author of "Saturn's Ringmaster," "Red Shards of Ceres," etc.



The four legs of this creature would have supported him—on Mars

Humanity's Survivors Challenge the Elements When a Robber-Star From Infinity Steals the Sun!

IT WAS hot there in the gloom—startlingly hot.

Eric Mundson and Lois were both wearing old slacks, the relics of many happy vacation days. Once, as late as fourteen months ago, in July, 1979, Eric Mundson had been just a chemist, working for Consolidated Steel. Folks had called him slow and steady, then.

But maybe it was because he had been slow and steady that he had been able to think when hell came. By radio, he had called a shattered population together, when, after a pro-

longed reign of cosmic terror, natural forces had begun to recede toward the quiet of eternal death.

Under Mundson's command were twenty thousand human beings, perhaps the only survivors of the race of man. Coolly, they were all waiting for the end. Mundson had organized that motley mob into departments. He had sent out scouts to find a place like this—a place where the quakes were ended, and still where there was a supply of heat to tap, from new-born hot-springs. Heat that would prolong life and hope. For the sun was gone!

From the broken porch of the white brick farmhouse, to which she and her husband had wandered from the encampment in the valley to the north, Lois Mundson glanced up into the sky. A light burned there that was not a star. It made her heart leap with wonder and surprise. But then she saw the small disc behind it, faint as moonglow on smoke, for in this sunless space there was so little light that a world could reflect.

That disc was crossed by an irregular, equatorial expanse of gray. It was Mars, swinging in an orbit perhaps five hundred thousand miles distant from the new orbit of Earth.

Eric was looking, too, at the glowing speck of radiance on the surface of that once-far-off neighbor planet.

"Life on Mars," Lois breathed softly. "We didn't know before. Odd that we should find out now, isn't it, 'Ric? What do you suppose they're doing there, with that light? Signaling?"

Eric shook his shaggy head, burdened with the situation confronting them.

"I think not," he responded. "They're probably building something, perhaps a gigantic shelter. That light suggests power. They're used to cold and to hardship on their aging world. Moreover, they probably weren't shaken up as much by quakes as we were, since Mars, its hot interior cooled to a much greater depth than Earth's, must have a more solid and stable crust. Considering everything, the Martians must be far better equipped to face the present situation than are we. I wish them luck, though. It is comforting to realize that other intelligent creatures are fighting the same battle facing us."

Eric and Lois did not explore the farmhouse, whose darkened, shattered interior could contain only pathetic reminders of a peaceful time that would not be forgotten until the last individual of mankind had died, a victim of the slow, creeping cold that was to be the aftermath of cosmic calamity.

Eric Mundson and his wife sat there on the broken porch-steps of the house, and watched that white-hot speck on Mars. It flickered a trifle,

like a giant furnace suddenly gone dead. In their fancies it was almost as though the watching pair could see at close range a molten river shooting up from some gigantic mold. Rust-red hills aswarm with dancing shadows. And brave creatures who were not men, toiling like ants. . . .

IDD how hot it was there in that unnatural dusk that masked the Earth. Almost ninety degrees, Fahrenheit. Lois commented upon this incongruous circumstance at last.

"Just like a summer evening, 'Ric," she said. "You can't quite believe, somehow, that it's true—that we're beyond—far beyond—the orbits of even Neptune and Pluto! But of course it's just the residual heat left in our atmosphere by Freiboldt's Star. And when that heat leaks away, Earth'll be as cold—colder, if possible—than Pluto itself!"

The story of Freiboldt's Star! Part of it was written in Lois Mundson's face. There were grim little lines of maturity around her young mouth, and an eternal look of half-scared puzzlement in her pale eyes. Mundson's rugged, angular visage, topped by tangled, reddish hair, told a bit of the tale, too. For his jaw looked harder now, and his expression was brooding with strain.

But more of the story was told by the Earth, extending all around in the half-gloom. Scorched trees, dry grass. Great volcanic cracks opened in the soil. A pungent, sulphurous smell was in the air. And that vast encampment there to the north. Twenty thousand human beings driven from their homes! Diesel-powered trucks parked row on row, all of them battered and dented from journeying hundreds of miles along quake-ruined highways.

Trailers and private cars and tents, arranged in an attempt at unwonted military precision. Electric lights burning, making the camp look like a country fair just at nightfall. Noises. People moving about.

Most of the history of Freiboldt's Star, however, was stamped in the heavens. The firmament was a deep, hard purple. At first glance, a person not acquainted with the meanings

written in that firmament, would have thought that there was no sun at all.

But he would have been puzzled to find that the darkness was not dark enough for night. Then he would have seen a star, low in the west, and brighter than the others. But probably it would not have occurred to him that this was Sol, Earth's maternal sun, from whose vicinity Earth had been removed to a distance of many billions of miles.

Off to the east he would have seen a second glorious star, burning with a white heat, but not as brilliant as Sol. It was the now fast receding juggernaut that Johann Freiboldt had discovered long ago. Johann Freiboldt had died before catastrophe had come.

And this hypothetical observer who did not know the facts, would have found more—much more—in those heavens, to wonder about. For many strange spheres were dimly visible. In the sad light of this region, they were as faint as ghosts. Perhaps the observer would have recognized Mars hanging there. Venus, misty and featureless because of the cloudiness of its atmosphere, would have puzzled him. The old Moon he would have found difficult to identify, for it was more distant now, and its familiar face had turned away.

Jupiter, poised far off, but forming the center of this outcast system, would probably not have been such a problem, for there was its great, familiar Red Spot, set at one side of its symmetrically streaked bulk.

Knowing Jupiter, the observer would have guessed that most of the other visible worlds were its native satellites.

But still he would have wondered how all this strange jumble of worlds could have come about. Earth, Mars, and Venus were now evidently satellites of Jupiter, too!

THE answer to the riddle was Freiboldt's Star. In comparison to other stars it was a tiny thing, a White Dwarf; but its density, its mass, and the strength of its gravity, were incredible. Years ago, when it was still a telescopic thing far in the depths of space, its presence, and its

movement—generally in the direction of the Solar System—had been detected. No one on Earth had worried then—much.

Freiboldt's Star was not much larger in volume than Terra itself. Moreover, its path could not be calculated with sufficient accuracy to cause alarm. And again, because it possessed no detectable attendant spheres, whose orbits and rates of rotation might provide the necessary clues, there was no way to compute correctly its colossal mass, or the terrific and dangerous pull of its gravity.

Not until it was nearing the Solar System was fear aroused on Earth. Which was merciful—in a way. For, by the best judgment, no permanent means to safety was available.

Like a white-hot dart, Freiboldt's Star had shot across the paths of Sol's planets. Relentlessly it had torn Earth and the Moon, and Mars and Venus from their orbits, dragging them with it. Jupiter, huge though it was, had suffered the same fate, yielding to the gravity of a bulk that was but a fraction of its own, by volume. And its many moons had gone into exile with their primary.

The tiny robber-star, however, did not want the worlds it had stolen. It moved so swiftly that there had not been time for them to accelerate to the proper speed to keep pace. And so, with Jupiter in control of the outcast band, they had been left behind, in a place of gloom and encroaching cold, at the rim of the interstellar void. Sol still bound them to a vast and eccentric orbit around itself, for the fingers of gravity are long; but of what avail or use was this feeble tie, now?

Perhaps Lois and Eric Mundson pondered this question as they sat there on the steps of the porch of that deserted house. They remembered the story of Freiboldt's Star in all its grim detail. Heat, withering, suffocating heat, that had driven them to the shelter of cellars, and other protected places. The shattering, trembling movement of Earth's crust had driven them out into almost unbearable open again. For such had been the gigantic travail of Terra's vitals, twisted by alien gravity.

Tremendous tides had swept inland to a distance of five hundred miles in many places. Volcanoes, breaking out in unpredictable locations, had covered wide areas with hot lava and ash.

Yes, these two remembered well. And they were still living the story, whose grim finish they were sure they saw. The science of man was far too feeble to cope with the ultimate problem ahead.

But given even transient peace and comfort, the brighter side of human nature is irrepressible. There was a thrill in listening to the sounds coming from the encampment. Rollicking music to mingle with the lowing of cattle that had been saved from annihilation, and had been brought hundreds of miles to take part in the last courageous stand. Children yelling gleefully. Adults, too.

"Old Basil Armstrong is working on his accordion again," Eric Mundson chuckled.

"And Eddie Barnes and his gang are playing baseball," Lois offered in return. She paused for a moment; then, half in pity and half in intense admiration for the small, tow-headed roughneck of twelve, she added softly: "Poor kid!"

THE brilliant, discless star that was Sol, sank into the west, behind mackerel clouds no different from those of old, and disappeared beneath the horizon. Freiboldt's juggernaut was occulted, or eclipsed, behind Jupiter. All of a sudden the sky was not deep purple any more, but hard, ebony-black. Abruptly, the stars were as sharp and glittering as the dagger-points of fiends.

In the thick darkness the scattered worlds seemed brighter, and less ghostly, than before. The grandeur of the view was magnificent, but in every detail of it was stamped the mark of inexorable finality. Against this impression, that light on Mars, expressing brave and determined, yet feeble, effort, was but a contrast that emphasized the stern, pitiless beauty that was here.

The sounds from the encampment faded away to hushed and pregnant

stillness—the stillness of living souls reminded of harsh truth. There was no sound except the sleepy hiss of the hot-springs, nearby.

Out of the stark blackness of the night, which seemed to foreshadow the empty eternity of extinction to come, a faint breeze began to rustle, as if to say farewell to things that were gone forever.

Lois pinched her husband's arm.

"Let's beat it, 'Ric," she said in a tone that was hurried and unsteady.

All sense of youthfulness was drained out of Eric Mundson. He felt old and tired and afraid. But in that feeling there was somehow something that gave him a determination that would endure as long as there was breath within him.

He returned with Lois to the encampment. Electric lights burned in festooning strings. Eric and his wife approached the power truck, where a generator hummed, and where an old man named Basil Armstrong sat, his accordion held mute in his hands.

"Time's up, Basil," Eric said, the softness of his voice, like velvet, hiding the heavy burden of his responsibility. "Everybody's got to sleep now. For in six hours we start work!"

Basil moved a switch, and a siren hooted briefly. Curfew.

DURING the next two weeks, that strange warmth of the weather persisted, like a kind of Indian Summer. From that small, alien star, Earth had absorbed much heat; and in the vacuum of space, leakage, which can occur by radiation alone, is slow.

Mundson's community toiled like demons, entrenching themselves against the breakdown of nature. Shovels were plied. Mechanical excavators, carried by some of the trucks, were put into service. Close to the hot-springs, great, rectangular pits were dug, and roofed over with the trunks and branches of trees, then to be covered with a deep layer of insulating soil.

Tunnels were made, connecting the habitations thus constructed. Their interiors were floored and walled with wood, and furnished with various common necessities and comforts col-

lected from the neighboring ruined villages.

Ventilating and heating equipment was built. An electric lighting system was improvised, the turbines to turn the dynamos being driven by the high-pressure, volcanic steam, tapped from the hot-springs. The corrosive acids this steam contained could not injure the turbines, for their interiors were coated with a protective glaze, as were the interiors of the pipes of the heating system. Most of this intricate preparation was designed and planned by old Basil Armstrong, the chief engineer.

Foraging parties went out with trucks, to collect food from the villages and cities which dotted the countryside. The various domestic animals, which had been brought in heavy lorries from various localities, had to be taken care of, too. Underground habitations, fundamentally similar to those intended for human occupation, had to be built for them. Feed was procured from a great, wrecked grain elevator, twenty miles away.

For two weeks the weather was good. Then, for two weeks more, it was unsettled and chilly. The initial work of preparation was almost finished, when out of the twilight sky came the rain and the wind. Then sleet. Then snow—a blinding blizzard—the writhing death-throes of an atmosphere.

A month it lasted. Then the tomblike darkness lifted, and the air was brittle clear. The temperature hovered at 120 degrees below zero, Fahrenheit. From this point it dropped gradually, retarded in its descent perhaps by the heat liberated by the freezing, salty oceans.

Out into the white stillness of the pre-mortal coma of a world—of the beginning of moveless eternity—human beings ventured. They were clad in thick, electrically heated clothing, breathing air warmed by the energy of dry-cell batteries, coursing through fine wires of high resistance.

Shut in for so long, these humans looked around them with wondering eyes, protected by thick goggles. They saw a desert of undulating

white. Trees were buried almost to their tops in drifts of brittle snow.

For a minute everyone stood mute and motionless with a kind of strained awe. Then old Basil Armstrong spoke, his reedy voice coming scratchy and blurred from behind the mask that shielded his face.

"There's still life in those trees, down in their roots," he said. "That life is fightin', to keep on being alive—like us."

Maybe, after he had spoken, old Basil regretted his words a trifle; for in them there was a pathos that might be detrimental to the courage that was so badly needed now.

IN Mars, still in view, but in a different position than before, that light of mystery had vanished. Or had it merely turned, with the rotation of the planet, being hidden from view on the now-invisible hemisphere?

"No," Lois Mundson commented quietly, answering the question that was asked back and forth, among the several hundred people who had ventured out of the underground burrows. Her arm pointed up toward the dim opal of that other planet, where other intelligences were battling extinction too. "See!" she said, indicating the grey wedgelike marking near the center of the vague disc. "That's Syrtis Major—a kind of semi-arid region of Mars. I remember now. The light was in Syrtis Major. The hot metal, or whatever it was that caused the light, has cooled."

But there was no time to spare in pondering the enigma of harsh romance which lay there across space. More food had to be found if possible.

For this purpose, covered sledges had been constructed, each of them equipped with a motor, taken from a truck, and with a propeller, carved from wood. One by one these vehicles, which had been built during the blizzard, were hoisted out of the steaming exits of the underground city.

Their sturdy engines, insulated against the cold, roared defiant songs of power, as, amid gusts of snow, hurled backward by the blasts from

their spinning propellers, the sledges skimmed away in scattered directions into the frigid gloom.

Eric Mundson, together with his wife and a youth named Ferris, manned one of the sledges. They struck off for a little city some thirty miles away. Richfield, it had once been called. But before their arrival there, something appeared to distract them from their objective.

Ferris was the first to glimpse it, as the power-sled rushed and bounded along. Off to the right was a black hollow in the snow, from which white vapor arose. Was it just a small hot-spring? Or was it something else? Five minutes could be spared for investigation.

But those five minutes became two hours. Two hours which encompassed in succession, fear, awe, hope, disappointment, and intense puzzlement.

That pit there in the snow, and in the ground beneath it, was the ironic finish of magnificent courage, behind which lay mystery on mystery. A cylinder, a projectile, broken and bent. It had evidently been turned on a gigantic lathe of some kind, for it was marked with circular tool-scorings, whose roughness gave evidence of feverish haste. And the fact that the cylinder was broken, perhaps gave evidence of haste too, and of an inadequate mastery of the problems of interplanetary flight.

They saw red blood on ice that had recently been snow, melted by the heat of impact. Red flesh clinging in small bits to the jagged edges of torn metal. Smashed, fantastic corpses. Only one of the beings that had arrived thus on Earth, had been able, actually, to creep from the projectile.

He was difficult to see there in the gloom, and in the shadow of the cylinder. Warily, their bodies acrawl with the goose-pimples of revulsion, the three who had come in the power-sled edged closer to the thing that, like themselves, must have a soul and a purpose.

THEY saw his clothing first—part metal, part thick fabric possibly made from some unknown vegetable

fibre. But the cloth was torn in many places, exposing the weird form beneath. It was oval, and was covered with a white, chalky exoskeleton. From it a pair of similarly armored arms projected, both of them equipped with claws, and with spatulate, fleshy fingers, the latter probably intended for feeling. The four legs of this creature might have supported him in walking position on a world of lesser gravity, but not here on Earth.

His body broken during the inadequately controlled landing, this strange immigrant was near to death. His cracked shell dripped blood. His padded, metal-braced limbs were frozen. But he still panted heavily, breathing.

Over the vents of his respiratory organs, which seemed to resemble somewhat the spiracles of an insect, little round boxes were fastened, their purpose doubtless being to warm and filter and reduce the pressure of the air. His multicelled eyes blazed sullenly through a transparent hood, watching with intent suspicion, the humans so near to him.

"A Martian!" Lois whispered huskily at last.

Young Ferris nodded.

"Guess so," he commented. "Here's part of your answer to the light on Mars, I think. They were making something there in Syrtis Major to hurl projectiles to Earth."

Eric Mundson did not speak, but a sudden idea seemed to take possession of him. He bent down beside the torn opening in the flank of the cylinder, where the crushed forms of other Martians had been spewed, and peered within. Then he crept through the hole. His companions followed him.

There they remained for a long time, searching through the wreckage that cluttered that bizarre interior. Metal. Glass. Strange instruments. A supply of liquefied hydrogen and oxygen to feed the speed-checking rockets at the nose of the projectile.

Eric Mundson shrugged at last in disappointment.

"Nothing doing," he said. "But it wasn't unreasonable to hope that there'd be knowledge in this cylinder that we could convert over to our own

use. Somehow I'm always thinking of atomic energy. That might save our necks, if we had it. But there isn't any atomic energy involved in the working of this thing. Unless it was in the apparatus that threw the cylinder from Mars. There's not much chance of that, though, since if the Martians had power of that sort, they would have used it in place of oxygen-hydrogen energy, to slow up their space car."

Out in the open once more, Eric Mundson and his companions stood before the weird visitor, who was breathing his last. Since they could imagine his fear of them, they did not try to touch him. That would have been unkind, and could have accomplished no good.

Lois looked into the being's big, jewel-like eyes, which still smoldered defiance.

"Why did you come to Earth, creature?" she asked gently. "Certainly, none of your people could be any better off here! Earth's problem is exactly as bad as that of Mars. Besides, everything here is different from what you're used to. The air. The gravity. Evidently you haven't the science to enable you to stay alive here. So, I'm inclined to believe that the building of—whatever it is in Syrtis Major—was a kind of last, wild gesture, as was your coming to Earth. You and your people must have been pressed awfully hard, to attempt so much. And we thought that you Martians were better off than ourselves!"

LOIS had voiced the greatest enigma of all. But both her husband and Ferris had felt the presence of that enigma, before she had spoken.

The Martian, however, could neither understand, nor offer any answer; though somewhere, locked within his grotesque carcass, must be the explanation for the riddle. Presently he began to tremble. The trembling ceased in a convulsive jerk. His life was gone. But his eyes stared on, holding crystallized in their gleaming depths, something hard and fine that deserved to endure for eternity.

The mystery of the Martian's journey to Earth throbbed in the pulses of

the two men and the woman who stood reverently before him. It ached in the sadness of the white landscape all about; and it was stamped in the deadly cold of the air and the purple sky. Little snowflakes, blown from the neighboring drifts by the faint breeze, seemed to caress his stiffening form. The bright speck of Sol, the sun that had become as star, was reflected from the broken flank of the cylinder that had brought him here.

Suddenly a light burned on Mars—in Syrtis Major again. But it was a different kind of light than before—a long, gaseous plume, heated to incandescence. With seeming slowness it jetted out from the planet. Then it began to fade.

"You see?" Lois questioned. "What do you suppose the thing is? A kind of big gun?"

"Something like that," Mundson answered. "Though it can't be, quite, either. If any living creature were put into a projectile, and fired from what we ordinarily think of as a gun, that creature would be killed instantly by the suddenness of acceleration. No, that apparatus in Syrtis Major must be something a little different—perhaps a long tube, sunk into the ground, where explosives are detonated in successive and gradually larger charges, to build up the speed of the projectile slowly."

"Projectiles," Ferris mused softly. "One here, right in front of us, and another coming. Who knows how many arrived during the blizzard, and were buried beneath the snow? Who knows how many are still to be fired? Poor, crazy devils from Mars!"

The diesel of the power-sled idled and sputtered impatiently. Ferris and the Mundsons clambered aboard, and hastened on toward Richfield; for demanding necessity could not be forgotten even at this time of strange discovery.

But when these three returned to the vicinity of the cylinder, their sled loaded with food supplies which they had dug from beneath the drifts that covered Richfield, they stopped to gather Martian instruments and apparatus, and to load the frozen corpse of the weird visitor onto their vehicle.

Then, as the gloomy day waned, they proceeded back to their underground city.

Old Basil Armstrong, who had commanded the crew of a sled that had gone in another direction, had arrived before them. In the small office room, constructed in one of the great chambers of the city for Eric Mundson, the leader, the two men conversed in quiet, excited tones. In a box on the floor lay the dead Martian.

"All day I been wondering what those animals were like," the aged engineer commented in his thin voice. "You see, my sled party found two other cylinders. They were all burned. Sparks from hittin' the ground so hard, I guess, and the rocket fuel inside. So you couldn't tell much. The fourth cylinder, which Corbin and his sled party located, was just a lump of balled-up metal. Those Martians don't seem to give a damn, though. That gun contraption on their planet spit fire a dozen times today, and in the afternoon I saw something like a big meteor fall, far off."

ERIC MUNDSON nodded.

"They must be aiming for this area, knowing by telescopic observation that it isn't broken up as much by volcanoes as other areas," he said. "But don't you see, Basil, what their persistence, in the face of certain destruction, suggests? Unless I guess wrong, Earth is somehow—in a manner which we know nothing of—a place of refuge, of possible survival! This seems to be a time for blind faith, Basil. We've just got to hope and wait—without wondering too much."

That night the many chambers of that crude, buried city, echoed with music and rejoicing—rejoicing based on a surmise whose substance could not even be vaguely glimpsed. But when calamity comes, optimism can be reborn in human hearts with no more than a Will-o'-the-Wisp to give it being.

So these survivors made merry. An ancient phonograph was given a chance to exercise its rusty throat, providing scratchy music for dancing. An impromptu amateur program, composed of many humorous stunts, was

concocted. Eddie Barnes exhibited his pet mouse, Oscar, whom he had captured in a store room. Other kids also had pets of various kinds to show, ranging from bumble bees, flies, and cockroaches, to rats and gophers.

There were even several small birds in the collection, these creatures having forgotten their usual fear of man in the face of disaster that was beyond their experience. Like the animals and the insects, they had sought refuge in the habitations of human-kind.

After two hours, because of the duties of the morrow, and the need for rest, the party was broken up. Men, women, and children filed to their separate dormitories.

And just about as they were doing so, another cylinder from Mars landed a hundred miles away. It was not damaged quite as much as those which had arrived before it. Three of its occupants still lived after the crash, for luck had favored them. But then, through small punctures in the projectile's impact-flattened side, cold Earth-air began to hiss.

Even Mars, in the old times of normalcy, had never experienced quite such a low temperature. And the pressure and gravity were deadly. Hope—if hope it was, and not madness—began to fade in great, gleaming orbs that saw now the absolute certainty of defeat.

For three days more the sky was clear, and Mundson's band was able to continue its quest for food. Then, with the abruptness of a falling hammer, the wind began to whistle. Off in the gloom to the west was a writhing, bluish-white pall. A new blizzard—a blizzard of frozen air.

Faces paled at sight of it. Lips parted in awe. Minds had imagined the approach of that blizzard often; and now here it was—a fact at last, vivid and real, with only the shadow of a nameless promise behind it, to make it seem less horrible—less like the final, Apocalyptic monster who changed warm blood to rigid ice, and stopped all life.

But at last, as days dragged into weeks, without a sign to give that promise substance, optimism began to

wane. Silence fell in the tunnels and chambers of the city of the survivors. Generators hummed. From the ventilator system, mingling with the whirl of fans, came a soft hiss—the hiss of congealed oxygen and nitrogen being converted again into gas by the warmth from myriad small steam pipes.

A few people wept quietly. Now and then someone screamed in the throes of hysteria. Food supplies grew less and less. Even the hot-springs betrayed a gradual decrease of heat, as growing cold bit deeper into their warm entrails.

FIVE weeks like that, until minds were dull with brooding, anguished boredom, and hope became passive unbelief. The reassurance of the mighty efforts of the Martians was a stupid mockery now. How could men expect to fathom the purposes of other-world minds, and correlate them with their own faint and wild objectives? Stupid even to try.

Eric and Lois Mundson sat alone and talked about old times. Summer suns and winds. Canoeing. Skating in the winter. They'd had a cottage at a place called Pine Lake. There had been a stove at the cottage—a funny old-fashioned stove with a nickel-plated lion on its footrest. . . .

Often Basil Armstrong came in to talk, too. And young Ferris. And others, among them Eddie Barnes, the kid. Eddie's nerve held up like iron. He was always welcome.

But at the time of his most memorable appearance, he looked glum and down. His small face was haggard, and his eyes betrayed the fact that he hadn't been sleeping well. His grin was crooked and apologetic. He stood on one foot and then on the other, distractedly. But he still had a lot to say. Oscar, sleek and fat, and tamed now, clung to his shoulder, and nosed about inquisitively.

"Wish I was as dumb as this old mouse of mine," Eddie declared sadly. "Oscar's happy because he don't know what's coming. He don't know we're done for. Say, can't you two quit playin' chess for a while, and come out and play ping-pong with me? It's

doggone quiet around this place. And the ventilator is goin' haywire, folks. It's makin' a funny noise, and there's water running out of it. I just noticed—Say, what're you two looking so surprised about?"

Eddie was scratching his head in puzzlement, but Eric and Lois were victims of more thrilling emotions.

"Real water, Eddie?" Lois demanded, rising from her chair.

"Well," the kid returned, "it looked like water. And I touched it, and it wasn't 'specially cold. And it couldn't be liquid air, because you said once that liquid air couldn't get past the hot steam pipes without being gasified again. Anyway, there's quite a lot of the stuff—a big puddle in the ventilator room. I guess nobody has seen it yet except me. So I came to tell you, because it got me kinda worried. Maybe we ought to rig up some kind of a machine to pump it out, eh?"

Eddie's words were enough to put the Mundsons into a mood for swift, feverish action. Rudely they rushed past him, leaving him confused and dazed.

"Heck!" he muttered.

Five minutes later a message was spreading, from mouth to mouth, and from chamber to chamber, throughout the underground city. Water? Was water up there on the surface, in that cold? Was it possible? And if so, did this new development hold a favorable meaning, or just a new and unforeseen threat?

The great wooden door, heavily insulated, that sealed one exit, was opened cautiously. A ton or more of icy water entered with a gurgling rush. But there was light too, up there on the surface—blazing light, a trifle different from normal sunshine, but of the same general character.

No one could have described in words all the tense confused drama of that moment. People rushed up the broad ramp of the exit, some of them fearfully silent, some of them shouting jumbled words of relief. They were like wild animals released from captivity in an unknown land.

"A sun!" a young man yelled hysterically. "A big, hot sun!"

(Continued on page 128)

The **EXPERIMENT** *of* **Dr. SARCONI**

*A Complete
Scientifiction
Novel*



By

HARRY BATES



Dr. Sarconi

CHAPTER I

Strange Attack

YOUNG Dr. Shallcross stepped out of the gyro and crossed the public landing stage. He turned into the aerial catwalk that arched through the midnight darkness to the building block where he lived.

He walked slowly, lost in a warm dream. By a miracle of nature his mind was three miles away, with a certain lovely blond girl named Diana. Tomorrow morning at eleven that girl was to become his wife. At last!

At the top of the incline he edged to the right and leaned over the guard rail. In his ears sounded the subdued pulse of the mightiest city in the world. A thousand colored lights winked jovially up at him from the dark arterial cleft below.

Waiting in the shadows at the far end of the catwalk stood a tall figure, shrouded in a long, dark cloak. Beneath the brim of a black hat pulled well down, a pair of dark eyes, hard and glittering, held on the dreaming Shallcross like a magnet. For several minutes the man waited, watching. Then he moved silently in his direction.

"You're Doctor Richard Shallcross?" the stranger asked in a bold, incisive voice.

"I am," was the startled answer.

"I've been waiting here for you. I have urgent need of your services."

"Who the devil are you, anyway?" asked Shallcross, a little angry at the sudden intrusion.

"Perhaps you know?" the man suggested, turning to allow the light of the bridge lamp to fall on his face.

Shallcross scanned him rapidly. He was about forty-five, tall and thin, with a large head and an aquiline nose. Decision and will were obvious in the firm thin lips. The dark, deep-set eyes glittered with facile intelligence. Clearly this was no ordinary man. But he did not recognize him.

"I don't think I do," Shallcross answered.

"I was counting on that," the man said.

"Shallcross, I can't tell you who I am. Even if I did tell you, you'd probably not believe me. I'm a scientist, or more accurately an

**Every man has his double
—but there were several
living replicas of Doctor
Shallcross, and he found
no safety in numbers!**

inventor. My name is world famous. That will have to be enough for you."

Shallcross shrugged his shoulders, but he was curious.

"What's the matter with you?" he asked.

"You are thoroughly familiar with the de Vries freezing technique?"

SHALLCROSS nodded laconically. Every thing about this approach was so queer that he thought it better to listen in silence.

"That's what I need you for," he enunciated clearly and rapidly. "I am engaged in a new and very promising line of biological research. I have reached a point where it is necessary for me to perform the de Vries technique. My subject is willing. He is quite healthy. No curing of any kind is to be attempted. The freezing is just one part of an elaborate experiment whose nature must remain a secret.

"For the moment, the subject is in the hypo-death state. I naturally require the attendance of a physician to make the cardiac injection which will bring him back. That's all there is. The risk, as you know, is negligible. I want you right away. And I'm prepared to pay you a very high fee—not so much for your services, which will be minimal, but for keeping your mouth shut."

"Where's your place?" asked Shallcross, after a moment.

"Ten minutes away, by plane."

"My fee?"

For answer the stranger promptly handed him a banknote from his wallet. Shallcross' eyes popped at the amount.

"All right," he said. "Do you have everything we'll need?"

"Everything," was the curt answer. "My gyro is over there. Let's get started."

Shallcross entered first and sat in the rear. The stranger took the pilot's seat, closed the door, and turned.

"A little light," he said, smiling strangely, and turned a switch.

The light came on—but the world for Shallcross went dark. He slumped back in his seat, unconscious.

The stranger's eyes glittered, and he set the gyro in a steep climb. Twenty minutes

later he carried the young physician, still unconscious, into his elaborately equipped laboratory.

DR. SHALLCROSS awoke in his own apartment, lying fully clothed on the sofa in the living room. The morning sun, reflected from the side of a chromium ashtray, was a brilliant point in his eyes. He felt horrible. He sat up and looked stupidly around, entirely without memory of what had happened the night before. He was merely surprised at finding he had been sleeping there in his clothes.

Just in front of him, next to the ashtray, lay a tiny white box. The wedding ring! He remembered that this was the day he was to be married. But that moment he was in no marrying mood.

It was some time before he noticed that the box was resting on a piece of his writing paper. With an effort of will he reached out and took it. A large banknote, the one given him by the stranger, dropped out. And then memory came back with a rush. The gaunt, hard stranger. His passing out in the gyro. What had happened?

He opened the paper. As if in answer, he found a penciled note.

"You fainted," he read in large, square characters. "So I took you home and got another physician. The experiment was a success." There was no signature.

He threw the paper away from him. He was ashamed.

He sat there a moment, remembering. But his head felt as if it was coming off. A shower was what he needed more than anything else. On wobbly legs he got up, undressed, shaved, brushed his teeth, and stepped under the shower.

It was not until he felt the shock of the cold water that he was struck by a very peculiar circumstance. Why had he remained unconscious so long? It had been a little after midnight when he stepped into the gyro, and his clock now said nine. Healthy people do not faint for nine-hour periods.

This worried him as he toweled himself and dressed. He had never fainted before in his life, and he still felt pretty bad. There was something the matter with his chest. He found it difficult to take a full breath. He decided to run up and see his friend Burton, an interne at Schuyler.

In a few minutes, he was on the first of the wide catwalks which arched from building to building in the direction of the hospital, several blocks away.

Below and all around him the city was stirring to meet another late-fall day. Aloft in every direction spun the busy helicopter buses, still carrying workers to the downtown business centers. Far up in the sky, but out of sight, he heard the faint cough of a mail rocket, probably at the start of the long two-hour run to Europe. But he noted little of this. He still felt doped and physically exhausted.

He himself had been an interne at Schuyler, so he knew which entrance to go down. He passed unchallenged into the maternity ward, where his friend was on duty. Burton, he was told, was busy with a patient,



Diana Shallcross

and a nurse suggested that he wait in one of the small ward labs. He did his waiting lying on an operating table, and when Burton came in he was asleep.

Gently Burton shook him awake. When he sat up groggily, they shook hands in silence, wordlessly glad just to see each other.

"Bob," he explained, "I've just dropped in. I'd like you to look me over."

"What's the matter, Dick? You look pretty fit."

"I don't feel fit." Shallcross smiled, removing his upper clothes. "Just plain rotten. Funny feeling in my chest. Can't get a full breath."

Burton laughed. "Shucks, I know those symptoms. You're just scared of that preacher man!"

He asked questions, prodded him, thumped him, took his blood pressure, used his stethoscope. When he finished, he stood back and looked at Shallcross with amusement.

"You haven't been pushing around a cop?" he asked.

"Oh come, Bob, be serious," Shallcross pleaded.

"I am," was the answer. "You've had a nice stiff jolt from a paralyzing ray."

Shallcross started.

"What's that?" Burton demanded, pointing accusingly to his chest. "Were you scratching fleas, or did you get a poke there?"

Shallcross looked. On his chest, just over the heart, was a small area slightly tinged with pink. In its center, exactly between two ribs, there was a small fresh scab.

HE paled, then grew angry. The scab was the typical one from the de Vries injection, and the pinkness evidently was the irritation caused by an attempt to wash off the yellow stain left by the iodine. Without question the stranger had made *him* the subject of his experiment!

He got away from the grinning interne

as soon as he could throw on his clothes. He fled to a quiet corner of the roof. There he racked his brain framing questions for which he found no answers.

Who could the man be? What could be the nature of his experiment? Was it so dangerous that he had had to kidnap a subject by using the illegal paralyzing ray? That was a major crime, and if found the man could be sent to the lethal chamber. Perhaps he was a criminal, even an outlaw. Judging from the size of his fee, he had money to throw away.

Why did the man show his face? Why ask his services? Why even mention the de Vries technique? He could safer and more easily have rayed him in the shadows and just carried him off. That was the strangest part.

Was he a ruthless and half mad experimenter?

Shallcross could not guess. He was free and not hurt, thank heaven for that. The effects of a paralyzing ray passed off in a few hours. It was unlikely that any damage had been done—except that he was about to be married, and he felt absolutely rotten.

Which reminded him that he ought to look at his watch. It was twelve-thirty. He was already an hour and a half late for the ceremony!

He grabbed an uptown gyro. He would decide later about searching for the experimenter or going to the police. He wouldn't tell Diana now. It wouldn't be fair to spoil her day.

He had to smile. As if her day wasn't already spoiled! The minister would be gone. Without actually telling her, what in the devil could he give her for excuse?

CHAPTER II

Capture

AT the nearest gyro stop, he took an express lift to the street level and hopped into a cab. He quickly reached Diana's place and shot the elevator up to her floor. Still undecided what to say, he rang her bell.

There was no response. He rang again, and again. At last he heard someone coming, and then Diana stood in the doorway, tall, slender, and lovely. But what was the matter with her?

She backed away from him, white as a sheet, eyes distended with fear.

"Diana, what's the matter—" he began, following her in.

But at his words she screamed and fainted dead away! Astounded, he tried to revive her. He saw she had been weeping. But she wasn't the fainting kind. It couldn't be because he was late.

When she came to and saw him, she trembled so violently that he feared she would go off again. Tenderly he tried to reassure her.

"Diana, it's only Richard. Don't be afraid of me. What's the matter? I'm not a ghost, I'm only your Richard, come to marry you."

Tentatively, trembling, she reached out a hand and touched his face.

"Oh, Richard!" she cried, locking herself

fiercely in his arms. "I thought you were dead. I was sure you were dead! I saw you! It was you. You lay in the morgue, your head crushed in."

Tenderly he soothed her. He was not in any morgue, but right there, full of life. He was the one and only Richard, come to marry her. Gradually he learned what had happened.

She had been waiting expectantly with the minister and several friends. When eleven o'clock came and he had not arrived, there was general joking at her expense, but no anxiety. Only toward eleven-thirty had she begun to worry. And then a telephone call smashed her life.

It was from the General Hospital. The body of a young man lay there, dead. He had been seen stumbling out of an alleyway at 239th Street near the Hudson. He had collapsed at the curb and died on the way to the hospital. Examination showed that his head and shoulder were crushed, as if from a fall or blow. Hers was the only address in his pocket.

"They tried to hold me, but I got away and went up to see you—him. He was just like you, Dick. He—he really seemed to be you. He wore that ring on your finger. He had the same wallet. I've seen them a hundred times! And—and they brought me back here!"

WHEN she finished, Shallcross' insides were creeping. This clearly had some connection with the other mystery! What could it be?

He had to see that body, at once. He told Diana so. But in her overwhelming relief, she refused absolutely to be separated from him and insisted on going along.

At the hospital an indifferent attendant escorted them to the body, lifted back the sheet from the head, and stood by. Shallcross was prepared for a resemblance, but the sight of the man's face was a major shock.

It was he! Nobody else could have had that scar under the chin, his brown hair, his nose, his ears!

"Your twin brother?" the attendant asked, stirred into sympathy.

Shallcross nodded without thinking why. "May I see his things?" he mumbled.

The orderly took them to a small drawer where the corpse's belongings were kept. The clothes were exactly like the ones Shallcross had worn last night. And everything taken from the pockets were exact duplicates of the things at that moment in his own pockets!

He looked in the wallet. In the back compartment was a banknote just like the one given him last night by the stranger. He took from his own wallet the banknote he had found that morning on his table. They were identical—in amount, in their creases, even in their numbers!

With an unsteady hand, afraid of what he knew he would find, he pulled the sheet down over the man's chest. There, right over the heart, was a circular yellow area. And in the middle of it, exactly between two ribs, was a small, fresh scab. . . .

He mumbled something incoherent and

hauled Diana away from the place.

Later, still trembling, he found himself sitting with her in a secluded corner of a public terrace. Diana was tending him anxiously, making him drink brandy, lighting cigarettes for him. Suddenly his arms were around her, and the lines of worry relaxed around his eyes.

He told Diana the story of the preceding night, and what he had learned at the hospital. He showed her the scab on his own chest. He assured her that he had no twin brother. They speculated fruitlessly, and gradually they became more themselves.

DIANA, almost morbidly anxious, was not going to let him out of her sight. She insisted that they get married right away—she had the license at her place.

They got it and found a minister who performed the ceremony. Shallcross had left the ring at home, but he made a substitute from one of Diana's wire bobby-pins, curving it around her finger and gently twisting it tight. Diana would not have traded it for any other in the world.

They had arranged to leave on a brief honeymoon that afternoon, but now that could not be. They still showed the emotional strain of the day, and fantastic explanations kept intruding in the young physician's head. Tomorrow, when he felt better, he would go to the police.

After dinner he took Diana to his home. At the door he stopped, kissed her, picked her up, and in the orthodox manner carried her over the threshold. But then he stopped short, and let her slip to her feet.

Before him, waiting for him, was the experimenter. Shallcross looked from the experimenter to the man with him. He recoiled in shock. There were two experimenters—identical in face, build, clothing!

They advanced on him, each with the same expression of icy malevolence. In the hand of one a ray projector winked green.

They grabbed Shallcross and Diana, crowded them out of the door and up the short flight of stairs to the roof. Half-conscious and half paralyzed, they could not resist.

The two shoved them into a waiting gyro and were off. Artificial fog rose within the compartment. A little later, able to move again, Richard and Diana felt themselves taken out of the gyro and into a dark chamber. They were carried down a lift, out through a dim passageway, and into a plain, barely furnished room.

One of their abductors seated them on a narrow couch and stood over them, eyes fixed on Diana's face. The second entered. Neither spoke. Both seemed to be waiting. In a moment Shallcross saw why.

A third entered, exactly like the other two! Then a fourth!

There were four of them, all absolutely indistinguishable. Each had the same tall, gaunt body, the same flappy clothes, the same glittering deep-set eyes.

They converged on the helpless pair. Shallcross felt his hair standing on end. He threw his arms around Diana. Like a cornered animal, he crouched backward against the wall.

One of the four then spoke to him, and each word was like a chip of ice.

"Where did you go after you left home this morning?"

Shallcross' mind raced, wondering what would be the right answer.

"At my office in the Medical Building," he said mildly. "Lying down. I felt ill."

"Did you see any patients? Any friends?"

"No."

"You're sure?"

"Yes. I felt ill."

"What did you do after that?"

"I met my fiancée and we were married."

Another of the four, the one who had been looking at Diana in a peculiar way, now spoke.

"Your wife is very beautiful," he said.

At his words all turned their eyes toward Diana. There was a general movement among them, bringing them closer to her. They looked with admiration, and something more than admiration. Diana turned and hid her face in Shallcross' shoulder. The four exchanged cryptic glances.

Shallcross was unable to bear this. He suddenly sprang to his feet, swinging. One of the four identicals fell, then another.

"Run!" he shouted to Diana.

But the attempt was useless. The weight of the remaining two big men bore him down and Diana was seized by the third, who was getting up from the floor.

Kicking, butting and struggling, Shallcross was brought to the door, taken down the hall, and thrust headling into the adjoining room.

He leaped up and jumped at the closing door, but it slammed and was locked in his face. As he jumped, something had caught his eye. Now he turned toward it.

Off to one side, examining him with the greatest interest, there stood a young man. That young man was in every slightest particular the absolute image of himself!

He was the third Shallcross. There were, altogether, himself, the one lying dead in the hospital, and now this one!

GAPING at the man, Diana and his anger of the moment were forgotten. That was himself! That was how he looked! That was the way he smiled!

The man came closer.

"I see they got you," he said in tone of sincere regret. The voice was Shallcross' own! The effect on him was beyond analysis.

"For heaven's sake, man," Shallcross exploded. "What is all this? What are you, an illusion? I just saw another one like you, dead, only a couple of hours ago—or am I going nuts? Who are those four men? Why are there four of them all alike? Why are you like me? Tell me—don't just stand there!"

"It feels funny to be talking to you," replied the other slowly, with a wry smile. "In here," he explained, placing one hand over his solar plexus.

"I know, I know," Shallcross shot back with a trace of irritation. Don't you suppose I feel the same thing? What is all this? Tell me."

"I'll tell you one thing—we're in a serious situation," the man answered with a show of anxiety. He led Shallcross to a large chair and ordered sharply, "Sit down and cool off. Be prepared for a shock. I'll tell you, but don't call me a liar till I'm finished. I've been here eighteen hours. I've talked with those men, and I know just what's happened. Now listen, and try to believe me. First of all, have you ever heard of Sarconi?"

"Of course!" exclaimed Shallcross.

CHAPTER III

Explanation

THE whole world had heard of Sarconi, the secretive, almost mythical genius, mathematician and inventor in half a dozen scientific fields.

"Well," went on Shallcross' duplicate, "one of those four men is the original Sarconi. That original Sarconi recently perfected his last and greatest invention, a Duplicator. With his Duplicator he can make copies of anything of reasonable size in the world, inanimate and animate—Yes, I'm a copy—but don't faint, and please don't interrupt! I've got to tell you this quickly, in sequence.

"While working on it, he dropped his assistants one by one, for his plans required utmost secrecy. He had decided on a bold and amazing step—the duplication of himself. One Sarconi had been a genius fruitful beyond comparison. What might not two, three, four be? Last night he was ready.

"But by then he was alone, and his process required the freezing of his own body according to the de Vries technique. So he had to have the services of a physician, to give him the cardiac injection which would bring him back from the state of hypo-death. That's where I—or rather you—come in. He had had you thoroughly investigated, and last night he decided to call on you.

"You know only the beginning of what happened. You were dosed with a paralyzing ray and brought here, and while you were still unconscious he made two copies of you. That was, first of all, a check on the functioning of his apparatus. While you were still unconscious, he delivered you back home. You, then, the original Shallcross, could know nothing of what was going on.

"Back here he had his two copies, both unconscious like yourself. He brought them to, in separate places, and explained to each one in turn that he had by a trick anesthetized him for purposes of greater secrecy. Each copy was angry at this, but was prevailed upon to go through with the experiment because of the very large fee. Of course, neither one dreamed he was not the only Shallcross.

"Sarconi's apparatus was in two parts, separated by a temporary sound-proof partition. Each copy was given a different set of instructions to perform, and each was to do his work on one side, without knowledge of the existence of the other.

"I really don't know anything about the other part," the duplicate continued. "But mine was roughly similar to that used in the

de Vries technique as we know it. Sarconi had me give him a physical examination. Then he explained a strict sequence of time cues by which I was to work a control panel by the dome. After that he got into the trough.

"I went ahead, making the usual injections and working the complete apparatus—the total experiment—from his list of time cues at the panel. At the end I brought my particular Sarconi to with the cardiac injection. At the same moment the other copy brought to life the newly made Sarconi. I think probably the other dome was masked, and all he did was make the final injection.

"With that our part was over. Each Sarconi recovered with the rapidity usual in the technique. I was getting ready to go home when my Sarconi brought me to this room. For the first time I saw the second Sarconi and the other Shallcross copy.

"I tell you, that was one hell of a tough minute! When we recovered from the shock, we Shallcross copies were pretty sore. The Sarconis displayed a good deal of ex-



Dr. Shallcross

citement. They locked us up and went back to work, and in the next hour or so made some other copies of themselves. We could hear them. As time went on, there constantly were more voices.

"They stopped eventually and came in to see us. We were raging, but a little afraid, too. They still showed their excitement and talked rather freely, telling us all I've told you—and it was a very neat plan. The original Sarconi had made four copies of himself. And you the original Shallcross, were safely back home, oblivious of how you had contributed your services.

"But what about us, the two Shallcross copies, we demanded. They told us in so many words that we were prisoners. We knew too much. If we behaved, they'd use us—and still other copies of us—in interesting experiments. We'd be subjects and maybe even assistants. In a few months,

when further plans of theirs were ready, we could go out in the world with them, free, and be big shots.

"They were vague about this. I think they harbor an ultimate ambition to dominate the country, and perhaps the world. But they weren't at all vague about the alternative. If we gave them the least bit of trouble, they would use us for their more painful experiments, as they put it.

"We saw red. When we got a chance, we made a break for the door. They stopped me, but the other copy got away. I learned later that he died outside as the result of a fall. Then of course, it was necessary for them to go and get you. Their secret would be exposed if the city discovered one dead Shallcross and one living one, at the same time."

AT that story, Shallcross—the original Shallcross—was overwhelmed. In turn incredulity, reluctant belief, amazement, horror, fear, had shown on his face. It was a story fantastic beyond imagining. But somewhere just outside were those four men. He had seen them, had struggled with them. And there was that Shallcross in the morgue, and this other one, alive, right in front of him. For a moment he was even beyond comment. Then he was assailed by a chilling doubt.

"How do you know I'm the original Shallcross?" he asked.

"They said you were, and I see no reason to doubt it. I'm Number Two, and the one who died escaping was Number Three. Number Three was made from me, they said. He showed only the one cardiac puncture, but that was because they went in through the same spot twice.

"I can't tell you the exact secret of the Duplicator," the copy went on. "When we asked, they laughed at us, and said they themselves couldn't understand—or at least couldn't describe its action. The process satisfies some extremely complicated relativity formula, pure mathematics. They freeze the subject close to absolute zero to slow down atomic movements. Then, using pure elements matching those found in the human body, they cause them instantly to assemble in atom-for-atom relation with the subject."

The duplicate paused. Something entirely different clearly agitated his mind.

"Did—did you marry Diana?" he asked with painful hesitation.

Shallcross Original threw up his hands.

"Yes!" he blurted, at his wit's end. "I'm married to Diana. And you're engaged to her. And this very minute they have Diana in the next room."

"What!" came the astounded reply.

"She was with me when they picked me up."

"That means she'll be kept prisoner, too!" the duplicate exclaimed. "Like us. She knows too much, too!"

"It's worse than that," the original Shallcross retorted bitterly. "I saw those four men looking at her. They fell for her like a ton of bricks. Every one of them, right off, just like that. And why not, if one did? They're all exactly alike. Call it love or

anything you please, but there was only one thought in their minds. Each one had to have a Diana for his own. And with the Duplicator each one *can* have a Diana for his own! There will be four Dianas, unless we can stop them!"

"We've got to stop them!" came the desperate affirmation. "We've got to escape from here, quick. The Sarconis are leaving here tomorrow, they said. This is only a temporary place, in case there was a slip-up with you or me. Their main laboratory may be much harder to get out of."

"Where is it?"

"I don't know—*Sh-h!*" the duplicate whispered suddenly, pointing to the door where someone could be heard using a key. "They're coming in. Be absolutely cool and calm. Don't antagonize them, however angry you feel."

THREE Sarconis entered, one holding a ray projector. Their eyes were those of fanatics, brilliant, piercing, impatient.

"Have you told him what you know?" one of them asked the Shallcross duplicate in a rapid incisive voice.

"Yes. I think he'll be tractable."

"I'd like to know what experiments you have in mind," asked Shallcross Original, masking his anger to some extent.

"Haven't you told him?" asked a second Sarconi impatiently. "All kinds. A hundred kinds. Psychological, physiological, biological, surgical. To judge by your blank face, I don't believe you grasp the possibilities of our Duplicator. It is by far the most important apparatus ever invented. It can duplicate delicate mechanisms and machinery—rapidly, from their component elements.

"Think what this would mean in war. It can duplicate the soldier himself, complete with equipment. It can duplicate genius. It puts in our hands the power to reshape the world over night—and control it! But that, for the time being, must remain potential. We are primarily scientists. We conceived it, at the beginning, for the rapid, accurate experimentation it makes possible on human beings. Do you see its value here, or must I explain?"

He paused a few seconds. But he had been going a little too fast for the young physician.

"All right," he resumed, "let's take a very simple case. Your scientist of today suspects that a certain drug will be of value in the treatment of a certain disease. First, he has to test it. He gives it, say, to a healthy man. The man shows certain symptoms. Now how does he know the drug caused the symptoms?"

"He won't. He'll use a control, you may say. All right, suppose at the same time he makes observations of another man who is not given the drug but who is present under the same conditions. Now he'll be able to get a differential. But what will such a differential be worth? Nothing, or almost nothing. Why? Because the two subjects used are different men. They differ in a million ways. Each is unique.

"Just think of the infinity of different hereditary and environmental factors

that go to make every individual in the world different from every other," that particular Sarconi went on explaining. "Each has different ancestors, each different hereditary factors, each different sets of experiences, sensations, memories, things forgotten, desires, ambitions, conditioning, habits.

"The behavior of each one at each moment is affected by how he slept last night, what he had for breakfast, the temperature, whether or not his wife kissed him good-by, and so on endlessly, in complex interrelations far beyond calculation. Is it surprising, then, that drugs vary in their effect? Some will kill one man, and the same ones cure another. But you'll say our scientist would never use two single men, but two groups. He would, of course.

"The differentials so obtained from large groups would show a trustworthy average. But that's just the trouble. They would show an average, when what is wanted is the specific effect of the drug on one man. Statistical differentials are of value elsewhere, not here. They are crude and dangerous when applied to the individual. Scientific facts, science itself, grows out of the discovered relations between concrete particulars.

"Now you'll have some idea of the value of our Duplicator. The subject, healthy or diseased, is duplicated in the desired numbers out of the raw elements. This gives the experimenter men to work with who are identical, cell for cell, thought for thought. We can take one man with cancer, say, and copy him fifty times. Forty-nine we can use in experiments involving different techniques or gradations of one technique—and then get our differentials. If they all die, what of it? We have our original and can try again with fifty more.

"These are the possibilities that lie just ahead. We assume, since you and your copy are identical, that you, like him, will be tractable. If you're not, God help you. You'll be held strictly a prisoner."

"For how long?" Shallcross Original asked.

"That depends on how rapidly our work goes. Maybe three months. Maybe a year."

"What about my wife?"

"She too will be a prisoner. For awhile. Now try to keep rational while I tell you something. We have decided to have her also for ourselves. That is, we are going to make copies of her, one for each of us. We each will marry our copy, if telling you that makes you feel any better. We will not rob you, however—contingent on your cooperation—note that. We will save the original for the original Shallcross. We'll make additional copies for the first Shallcross copy and all others who may be made, so you may have them when you are released."

CHAPTER IV

Death and Rebirth

SHALLCROSS ORIGINAL found difficulty in controlling himself.

"Do you think my wife would bring you any happiness?" he asked. "She happens to love me."

"We're changing that. She will be reconditioned to love us. That is our next experimental problem."

"She may have something to say about that," exclaimed the young man, beyond control. "And so may the law when it finds out."

"The law be damned," was the contemptuous retort. "Her copies have no existence before the law. They will have been manufactured. By these hands and this brain." He held out his strong hands and then touched his impressive head. "Now calm down. Be like your copy. You've little to lose and a great deal to gain. And anyway there's nothing you can do about it. Now, we have work to do. Get some sleep, both of you. You'll be in better quarters tomorrow night."

And with these words the Sarconis abruptly left the room. Shallcross Original turned to his duplicate.

"These men are mad!" he cried. "Sarconi was once all right, but with the invention of the Duplicator he—all of them—have turned criminal. They're dangerous!"

"They won't dare to release us," the other said. "We've got to escape!"

"Have you been over the room? Any listening or spying devices? How about the window and the door?"

"There are no spying devices. I've been over every inch. The window's locked and barred. The door's light steel, and I think they've got a photocell detector across the outside frame."

"How about the walls? This is only an ordinary apartment house, to judge by this room."

"There'll be metal lathing, but that's all right if we only have time. We might start at a electric light outlet."

"Let's have a look at that ventilating grille," said the original, his eyes intent on the long horizontal chromium bands.

Standing on his duplicate's shoulders, he peered in. With a dime from his pocket, he removed the screws holding it in place. The air blew into the room from a tube that was narrow in depth but quite high vertically. He shook his head.

"I don't know," he called down. "I might fit if I could get in, but I'd have to take off my clothes. I'll try. It ought to lead somewhere."

HE jumped down and started removing his outer clothes. His duplicate started to follow suit. Shallcross Original suddenly objected.

"One of us first—and that's me. You help me in. You'll be better able to get in by yourself. You're probably a lot fresher than I am."

Clad in his underwear, without shoes, he got up on the other's shoulders again. He put his arms into the interior, the left one below. Then he turned his head so that his chin was over his left shoulder. Hunching his shoulders as high as he could to fold them to their narrowest diameter, he inserted the upper part of his body.

"Push," he whispered.

His duplicate did so. Slowly painfully he went in. When his legs were in line he

pressed backward till his face showed at the grille.

"It's tight, but I can move. I'm going to pass along the other rooms on this side. There may be one with a door open. Diana may still be in the next room. Better jam the furniture against the door. Put a table underneath this grille and take off your clothes so you'll be ready to come in. I'll whisper if I find anything. The tube'll carry my voice."

"Okay," was the hopeful answer. "Luck!" Shallcross inched forward and slowly disappeared. His position was a difficult one. The pipe was a narrow oval, actually not as high as his shoulders were wide, but fortunately it was flexible and bent sufficiently. The worst was his head. He had to hold it sharply to one side. He knew he would not be able to stand it very long.

Inch by inch he made his way forward, extending his arms a trifle, getting traction with his hands and forearms. Then he compressed his shoulders the little he could. The whole action was like that of a worm. He had to stop frequently to rest. It was pitch dark. He was thankful that he was in a supply tube, for the air which passed him was conditioned, cool and plentiful. There was little danger of smothering.

Eventually he made out a dim light farther ahead. Doggedly, with growing effort, he kept on until his face drew even with the grille and he could look through. It was the room he and Diana had been taken to. The door was closed, and presumably locked, and Diana was not there.

SHALLCROSS grew worried. He had hoped very much to see her. He gritted his teeth and pressed on into even deeper darkness. His progress was slow, and he had plenty of time to nurse his hate for the Sarconis.

How dare they lay hands on his wife! How dare they look at her the way they had! The thought of their making four Dianas for themselves was intolerable. There should be only one Diana, and he was legally married to that one Diana, and all he wanted was that one Diana. What monstrous experiments could they have in mind for reconditioning their projected Diana copies to love them?

After a long time, well ahead, he made out dim horizontal bars of light on the back wall of the tube—another grille opening. He pressed forward, wondering what he would find. When he reached it, he found he was at the laboratory.

Blinking in the sudden light, he made out a room dominated by two long, narrow shells of dense amber material—the domes of the de Vries freezing apparatus, in duplicate. Heavy bundles of cables led from under each dome to a large, upright control panel located between. Thick pipes also led from there to the thermal unit, placed behind the panel.

Against the far side wall he could just make out one side of some heavy shelving, on which rested a number of large vessels containing chemicals. Here and there about the room were the tall, gaunt Sarconis, four of them, efficiently engaged in various duties.

As he was taking this in, one of the Sarconis threw a switch. It caused two wide beams of bluish light to fork down from the ceiling on the two domes. Shallcross stared in petrification at the near one.

The brilliant beams cut through its amber shell and revealed under it a high, black, metallic block. In the upper surface glittered an elliptical trough—and in it lay the still form of Diana! She was unconscious. The devil's business seemed about to begin!

Shallcross bit his lips to keep from crying out. There wasn't a thing he could do. He was as good as in a straitjacket. His lightest movement would only have exposed him in his helplessness. He watched through gathering tears of rage.

The Sarconis took stations and waited tensely, eyes fixed like snakes on the still figure in the brilliant light under the dome. One stood at the control panel. One stood at the foot of each dome with a large syringe ready in his hand. The fourth stood by the side of Diana's dome, holding a small syringe.

THE eyes of the one at the panel were fixed on his pocket watch. Suddenly he pushed a button and both domes tilted back upward toward the concealed Shallcross. At once the Sarconis with the small syringe stepped to the side of Diana. He inserted the needle into a large vein in one elbow, and waited, thumb on plunger. Slowly the one at the panel raised his hands. His bony fingers snapped. The Sarconis at Diana's side pushed in the plunger, drew out the needle, and stepped back.

The dome fell rapidly. There was a hiss as frigid air shot in. Light snow fluttered down. Diana lay there unconscious, rapidly freezing. Shallcross' eyes turned to the Sarconis at the control panel. He was watching the dial of the electric sphygmomanometer, from which there was a wire leading to a receptor on Diana's elbow. Down, down, the needle must be creeping. The infinite millions of minute life processes in the still form of the woman he loved were coming to a stop.

In frighted silence all waited. The Sarconis at the panel never took his eyes from the dial of his pulse meter. When the needle touched zero, the frigid body of the girl on the slab would, by every test, be dead. Dead, except for one thing—under certain circumstances she could be revived.

Again the man slowly raised his arm, snapped his fingers. Nothing happened for five, six, seven seconds. But on the eighth he threw two switches in rapid succession. Shallcross, eyes now back on Diana, tensed with amazement.

Wave after wave of brilliant rainbow light washed rapidly down the concavity where she lay, while from somewhere came a humming as of a thousand bees. For not more than a second this lasted. Then the Sarconis at the panel moved his fingers and the light was gone and the humming died into shocking silence.

And there, in the concavity of the second block, where there had been nothing, lay now a pale, rigid figure. It was identical, point for point, with the one on the other

block. There were now two dead Dianás! Breathless, Shallcross watched. The seconds crawled by. He saw the snow inside both domes melting. The hot air had been shot in! Then the Sarconi at the panel moved.

Both domes hinged rapidly upward. The two Sarconis waiting with large syringes jumped to the sides of the motionless figures. Carefully each one inserted the long needle between the ribs on a spot marked with iodine. Steadily, inch after inch, they drove them home, straight in to the motionless hearts. Then they pushed their plungers.

The figures quivered. Their eyelids twitched. The right eye of each one opened.

There were now two live Dianás!

CHAPTER V

How to Go Mad

RICHARD SHALLCROSS shut his eyes and violently pushed himself backward. The Sarconis were active and speaking now, but their words did not register. He was one mass of blind rage.

In a few minutes he was back at Diana's grille. Diana was just being led in by two Sarconis. She walked carefully, but seemed all right. The Sarconis stayed a moment, murmuring something to her that he could not hear. When they went out, they carefully closed the door.

"Diana!" Shallcross called to her softly.

With a start the girl turned and looked up at the grille.

"It's Richard," he said in a whisper. "Don't be afraid. I'm in the ventilating tube. Are you all right?"

"Oh, Richard!" she cried. "They made a duplicate of me!"

"I know. I was watching from the laboratory grille. I was helpless to do a thing."

"Did you see the other?"

"Yes. You both revived together."

"But where is she?"

"Perhaps she's being used again."

"Then maybe I'm the copy!" Diana cried.

She seemed ready to fall. Shallcross hastened to comfort her the best he could.

"Hold on, Diana—don't take it so hard," he pleaded. "We'll be out of here soon. I'm sure I can find a way out through this tube."

"But what if there's another one like me!"

"There's only one Diana in all the world, and that is you!" he said ardently. "Let me see your ring."

She held up her hand so he could see it.

"That is our wedding ring, and when you are worried just look at it and remember that I'm your husband."

"But maybe you're married to the other Diana, too," she reminded him unhappily.

Shallcross told her about his own duplicate in the next room.

"The other Diana can marry him," he concluded triumphantly.

"But if they're making more?" she insisted.

He had no answer for that and in desperation talked of other things at random. He was badly in need of reassurances himself.

He was still trying to solace her when

there was a noise at the door. Quickly Diana wheeled. Two Sarconis entered, supporting between them another Diana.

For one painful second the two women stared hard at each other. Then the first one, the one who had been talking to Shallcross, began to sob. The two Sarconis left, and the second Diana also began to sob. Then suddenly she looked up at the grille.

"It's Richard," a soft voice came down to her. "Don't be afraid. I'm here in the ventilating tube."

"Oh, Richard!" she cried. "They made a duplicate of me!"

Exactly the words the other Diana had used!

Shallcross talked to her, but he hardly knew what he was saying. He was half crazy. What could he say? Now there was another Diana, exactly like the one he had just been comforting. How could he repeat his tender words for her? And there probably was another at that moment in the Duplicator. Not even the Sarconis could know which was the real one.

He told her about his own duplicate and assured her that at any rate there now were two Richards for the two Dianás. But that suggestion did not seem to help very much. She held up her hand with her bobby-pin wedding ring on it and said she was his wife, and always would be. She didn't care about any other Richards or Dianás. She was even more overwrought than the first Diana.

And then, at the height of this, the door once more opened. The Sarconis entered with the trembling figure of a third Diana!

Shallcross couldn't keep facing this again and again. He pushed away from the grille. Crying, cursing, half out of his mind, he wormed backward to the room he had first left.

His own duplicate was waiting at the grille, the broken leg of a chair in his hand. He had been prying one side of the grille opening of the tube away from the wall.

Shallcross Original blurted out what he had seen.

"And I couldn't do a thing!" he sobbed. "Not one thing that wouldn't be useless and give me away. There are three now, maybe four. And maybe before they get done there'll be forty!"

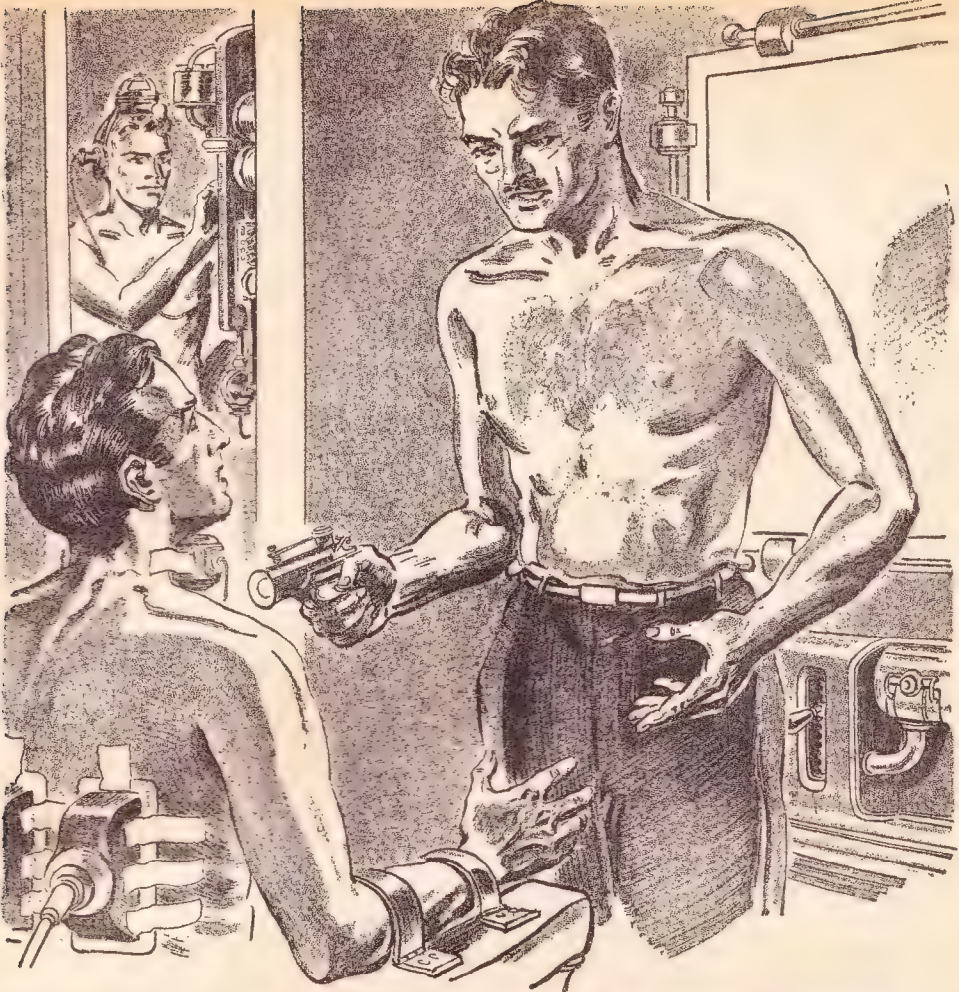
"Come on in," ordered the duplicate. "I've made that hole down into the wall. I'm going down and find a way out."

"I'm going down—she's my wife," was Original's emphatic, somewhat illogical answer. His legs were already in the hole. "You stay here. I'll find a way out and bring help. Put back the grille, and remember you don't know where I am." His body was already making the turn over the edge. "I'll be back!" were his last words.

HE was now completely out of the tube and within the wall. He did not fall. Friction and the pressure of his hands on the feltlike sound-proofing kept him up. He heard the grille being replaced, then his duplicate's anxious whisper.

"Hurry!"

He realized now that he had a difficult and peculiar job ahead of him. His problem was



Shallcross Original forced one of Sarconi's duplicates to think the answers to his questions

to get out of the wall, in a place away from the apartment so that the Sarconis could not intercept him. But what kind of exit might there be from a wall? All he could think of were places where things like electrical wiring, water pipes, ventilation tubes, incinerator outlets, and similar dangerous devices, passed through.

He knew he was in a modern apartment house. The walls, to allow passage of the large tubes required for adequate air-conditioning, were of thicker construction than those of older houses. But waste of between-wall space was avoided by the use of alcoves, for book shelves, sofas, and interesting effects.

The alcoves of one apartment were dovetailed with those of the room on the other side, so that no two were opposite. They stopped several feet from the ceiling, to allow room for the large ventilating tubes and other service lines. There ought to be a space beneath the pipe he had just come out of.

He reached out a seeking hand and found it was so.

He was in a vertical position in a narrow space between the sides of two alcoves. The

first thing was to try to get away from the proximity of the room, preferably down, if he could get through to the floor below. Carefully he pushed himself lower. At the bottom, his stockinged feet contacted a horizontal skeleton beam, and with relief he found one of the rectangular holes. He started through, but at once was stopped.

Further descent was barred by the tube supplying air to the floor below. Damn, he'd forgotten about that!

Perhaps he could force the tube down, away from the lower apartment's grille, he thought. The tube, half cut away at that place, would be weak. But there would be a noise.

He knocked twice on the wall in front of him. Two answering knocks came back. His duplicate was saying that all was clear in the room.

He had to take the chance. He forced all the air out of his lungs, braced his arms against the sides of the two alcoves, and forced his weight down on the tube. It gave with a crunch!

"Building contractors being what they are, I'll get out of here yet!" he thought grimly, resting after his effort.

Again and again he pushed on downward. Now he had better leverage and his final push ripped the tube clear of the grille. In a moment his feet were kicking through the thin horizontal ribbons of the grille-front and his legs were in the room below.

And then suddenly he went slipping tearing through.

He landed on a soft bed and bounced upward. The recent occupants of the bed, a fat woman and a pudgy little man, he saw crouched in their nightgowns in the far corner of the room, quaking with fear.

"D-do something, Henry!" urged the fat woman.

But her spouse could think of nothing that he might dare to attempt. Shallcross wasted no time on them but darted through to the corridor. He needed a ray projector, and that meant the police, for only they were allowed to carry them.

Apartment 3A, he noted on their door. That meant that Sarconis had 4A. He passed by the elevators and took the stairs, three at a time. That might not be quicker but it was a lot safer.

He sprinted by a frightened clerk and elevator operator and was out on the pavement. It was night. On the corner by good luck, stood a policeman.

"Come!" Shallcross cried in great excitement, pulling at the officer's arm. "I need help! There's a madman in that building—four of them—They're making people with a machine! We've got to stop them!"

The officer benignly looked down on the skinned and bloody young man in his underwear.

"Well, now that's a shame," he said with appropriate sympathy. "Four av thim? The dirty divils! We'll buzz for a radio-plane."

He laid his hand on Shallcross' arm, reached for his transmitter, and winked comfortably.

"No, we can't wait!" the young man exclaimed—and then he understood.

This officer thought he was crazy. He'd take him to Bellevue, and while Shallcross was convincing them, heaven knows how many more Dianas would be made. So he acted.

He hit the officer with all his might on the side of the jaw. The man went down, dazed. In a flash, Shallcross had his hand projector and was flying back to the building.

This time he made for the elevator, ignoring the operator, and in a moment was stepping out on the fourth floor. He found himself in a small private lobby. The door to 4A was closed and locked.

HE knocked, then stepped to one side, projector ready. There was a long pause. He heard voices behind him down the elevator shaft. Then the door opened slightly and the face of one of the Sarconis appeared in the slit.

Shallcross pressed the switch in the man's face. Before Sarconi fell paralyzed, he was inside, raying again at another figure at the far end of the hallway.

Rapidly but silently he stalked up the hallway, trying in turn each door he came to. The first ones were locked. Then one of them pushed open—it was the laboratory—

and he went in with ray on, sweeping the room. Like a cockroach in a killing spray a third startled Sarconi dropped to the floor at the spot he had been standing on.

Softly Shallcross stepped out the door and continued up the hall. There was one Sarconi still unaccounted for.

Shallcross came to another door that was open—the room he had been prisoner in. Boldly he stepped inside. The last Sarconi was there, standing on a chair placed on a table, peering into the broken grille opening.

"And you!" Shallcross cried venomously.

The tall figure turned in amazement and jumped. But the ray caught him in mid-air. He crumpled to the floor like a wet dishcloth and lay still.

At once Shallcross took the keys from the man's pocket and opened the door of his wife's room. The place was full of Dianas! They crowded about him, asked questions, laughed, cried, exclaimed. His duplicate was there, too, also in his underwear. He had been standing behind the door with a chair, ready to bounce it on his head.

A bathroom was found. It seemed that a thousand Dianas pushed the bloody and jagged young man. And every single one of them fought to bathe his wounds and receive some word or look of endearment. He shook the lot of them off and ran out in the hall.

"How many are there?" he demanded of his duplicate.

"Five."

"Good heavens!" he exclaimed frantically, holding them at bay. "Which one of you did I marry?" he asked, a little hopefully.

"Me!" they cried out with one voice and closed in on him again.

A moment later he was rescued by a squad of police. And before morning, after a mad scene in the station house, the four Sarconis were prisoners of the law.

CHAPTER VI

Chaos in Court

WITH the speed of light the radio waves shot the first flashes of the story out over the earth.

"Details!" cried radio news editors in capitals ten thousand miles apart.

Soon details in little dabs, very much garbled, were coming through.

"Sarconi, inventor without peer, is really four men, quadruplets! All of them have been arrested."

"Sarconi is mixed up in a scandal with five women, quintuplets!"

After awhile, Shallcross managed to make the police listen.

"Sarconi has discovered the secret of life!" the newscasters cried. "He has invented an apparatus claimed to create life. The apparatus is said to manufacture copies of living human beings."

Then Shallcross got to the district attorney, who listened intently.

"Correction," the editors added with bewildered, hurried voices. "Sarconi is one man. But with a marvelous new device of his own invention he has made three copies of himself. He has also made four copies of a young woman, Diana Winton, making five

in all. And he has made one copy of a young physician, Dr. Richard Shallcross, making two in all.

"The four Sarconis are under arrest in the Sixteenth Precinct Police Station. They are charged with kidnaping and using for experimental purposes the bodies of the original Diana Winton and Dr. Shallcross. Each of the five women claims to be the original one. Each claims that the Sarconis fell in love with her and for that reason made copies of her.

"The four Sarconis have been held without bail. The man who claims to be the original Dr. Shallcross has been released under one thousand dollars' bail. He is charged with assaulting Patrolman Michael McGinty and stealing his paralyzing projector. With this weapon Dr. Shallcross is said to have effected the rescue of his own Shallcross duplicate and the five women.

"Each of the five young women claims to be the wife of the original Dr. Shallcross. He claims to have married one of the young women the preceding day, but does not know which. The original Dr. Shallcross claims there was another copy made of him. That one allegedly lies dead in General Hospital from injuries received while affecting an escape from the Sarconis.

"It has been learned that a body identical with that of Dr. Shallcross lies in the morgue of General Hospital. The records reveal that a marriage was performed between a Dr. Shallcross and Diana Winton yesterday afternoon."

AND so it went, the flashes quickly building up to an accurate picture of what had transpired. Statements were obtained from every Diana and Shallcross involved. The Sarconis refused to talk, except one who said with a sardonic smile that they were quadruplets. He called the presence of five Miss Wintons "a remarkable coincidence."

The world gabbled with amazement the mounting details as they came in over the air. How could such a thing be? Might it not be a hoax? Which was the real, the original Sarconi? Which the original Diana Winton? Here were two men and five women, all claiming to be married to one or more of the other sex. The original Shallcross claimed to have married the original Diana, and there was a record of such a marriage. But each one of the Dianass wore a bobby-pin wedding ring and each one claimed to be the bride. There seemed to be no way of finding out which was which!

The poor Shallcrosses and Dianass dodged curious crowds. They tried to bargain with the Sarconis to make three more Shallcrosses, as a partial solution of their emotional and marital impasse. But the duplicate scientists only smiled darkly and turned away.

The Shallcross duplicate was positive he could remember the series of time cues by which he had helped make the first Sarconi copy. After a great deal of trouble, he succeeded in arranging the attempt. But a committee of eminent scientists, concurrently assembled to discover for the world the secret of the Duplicator, exploded that hope.

When they removed the side of one of its black blocks, to get at the apparatus concealed beneath, they released two bombs placed there to interrupt just such meddling. The Sarconis smiled, but still did not talk.

The days passed. The situation became maddening. Shallcross Original, for instance, was affected by all the Dianass in exactly the same way and degree. He could be with any one of them and feel she was the one he had married. But when that one was in the company of the others, he could not tell them apart, no more than could the most expert medical examiner.

It would have been manifestly unfair for him and his duplicate to marry or remarry two of the Dianass and let the three others go. It was not even to be considered, for this reason alone. But there were other reasons. To do so would involve a high probability of bigamy. And then Shallcross Original harbored a strong sentimental—if illogical—desire to live by the side of Diana Original, the particular girl he had come to love.

The day of the Sarconis' trial arrived. The very first defense maneuver was sensational. They demanded the dismissal of the indictments against the three Sarconi duplicates on the ground that they had no legal existence.

The arguments were heated, for the point was without precedent. The judge wavered, and the millions at their television screens held their breath. There was no way to differentiate the duplicates from the original!

FINALLY the motion was denied, and the millions applauded. A similar motion challenging the right of the Diana duplicates to testify was denied. The trial proceeded.

The defense worked specially hard on the five Dianass, trying desperately to get some of them to testify that only two or three of the Sarconis had been present at their duplication. Everyone saw that they were attempting to raise a reasonable doubt as to the complicity of all four, with the hope of challenging witnesses and the jury to pick out those—and those only—who were guilty.

But every one of the Dianass held firm at four. They'd seen exactly that many, no more, no less. They'd counted them.

The days went by, and conviction of the count of malpractice by force appeared certain for all four of the defendants. That meant death in the lethal chamber. But the Sarconis retained a contemptuous, enigmatic smile. The millions at their screens wondered.

Eventually they saw the reason. The prosecutor had started his summation and was proceeding with cold, inexorable logic, pounding at the number four. There were four defendants. The original Shallcross had seen all four at work making Diana Duplicate Number One. Each Diana duplicate had been born to consciousness under the ministrations of all four. There were four Sarconis, always four, and therefore all four of the defendants were guilty.

"Guilty!" he thundered, turning with the word and dramatically counting the defendants off on his fingers.

And it was at that moment that the millions saw why the Sarconis smiled. There was an agitation at the rear of the court. Every one turned, looked—and gasped.

A fifth Sarconi was entering the courtroom! Five had been made!

The fifth Sarconi went down the aisle, escorted by an amazed guard. His face bore the same enigmatic smile that was on the faces of the others in the prisoners' box. As if oblivious of the effect he was creating, he calmly took a seat from among those vacated by the first photographers to react.

Pandemonium followed. The judge adjourned court till the following day, and the fifth Sarconi was held. Then the attorney for the defense lined up his five Sarconis and challenged the Dianas and Shallcrosses to pick out the four guilty ones. Helpless, they admitted they couldn't. No one in the whole world could possibly have done so.

The outcome was inevitable—all five went free. In a scene of chaos, the Sarconis were rushed out a back door and into the plane the last one had arrived in. A few minutes later they were a speck in the southern sky. Excitement continued all that night outside the court-house, on every street, in every public place.

The Shallcrosses and Dianas went into seclusion again. Life had become a bitter thing, beyond solution.

SUDDENLY, two weeks later, after a night of wild wind and rain, the Shallcross duplicate found in his shower an ominous sign.

On the skin of his breast, over his heart, exactly in the center of his syringe scar, there was now a tiny new scab. It had been so carefully disguised, that only by the merest chance had he noted it.

He told Shallcross Original. They sent for the Dianas. Four of them showed healed scars, but the fifth bore a tiny scab just like the Shallcross duplicate's.

The Sarconis were back at their damnable work! In the night, somehow, they had made copies of Diana and Shallcross. The drama was expanding. Shallcross Original and his duplicate sat in their apartment for a long time after that discovery, trying to hit on the best thing to do. Neither was inclined to go to the police. A good deal of skill had been used in trying to mask the new scabs. Evidently the Sarconis had hoped they would disappear unnoticed. Since they now had specimens of both Shallcross and Diana it was unlikely that they would be back to bother them again.

So the Shallcrosses reasoned. But new copies might mean new problems—and the impasse of a married Shallcross and a married but indeterminable Diana was still before them. The differentiation of the various Dianas was the urgent first step toward any happiness they might hope for in life.

The Sarconis had vanished. No doubt they had returned to their main laboratory, where they could build, or probably already possessed, another Duplicate. All the previous Sarconi inventions had come out of that hidden laboratory. The secret agents

of a dozen world powers had tried to discover its whereabouts, but none had succeeded. Could the police find it now? The Shallcrosses doubted it. Yet surely there must be some way.

After awhile Shallcross Original looked up.

"I think I have it," he said. "You remember what the Sarconis said their next task was to be?"

"Yes—to discover how to condition the Dianas," answered Duplicate. "So they'd forget us and come to love them. I'll bet that's what they're doing now. And I'll bet they succeed if they get enough time," he added bitterly.

"They might do it eventually, but I'll bet they'd jump at a chance to buy such a conditioning device on the market," Original stated with an odd smile.

It took some time for the duplicate to close his mouth and ask a question.

"What do you mean?"

"I mean that you and I have invented one! Of course our names can't appear. It will be, let's say, Dr. Herbert Witherspoon's Habit Conditioner."

"Boy, you've got it!" shouted Shallcross' duplicate. "We'll take a laboratory in another city, put some odd looking apparatus there, and get some radio publicity. There's hardly any doubt but that the Sarconis take the science broadcasts on their radio recorder. They'll be at our place in two jumps!"

"And we'll be there waiting for them, and make them take us to their laboratory! I'm a genius!"

"Then so am I," was the cheerful answer. "Let's get under way."

Madly, they rushed through their arrangements. The duplicate went to Philadelphia and bargained for an unused lab in the Kensington mill district. When he got it at a reasonable price, he started hooking up a weird conglomeration of apparatus.

The original, after some trouble, arranged considerable mention in the big evening science newscast. He had to disclose the plan to the president of the broadcasting corporation and point out the splendid publicity if the plan succeeded.

With less trouble he obtained permits to carry paralyzing ray projectors. He promptly bought four, and stayed up late every night for a week reassembling two of them into a unique device of his own design.

CHAPTER VII

Return to Torment

AT the end of a week everything was in readiness and the station notified. The mention was all they could have asked. It was liberally sprinkled with "it is claimed" and other standard evasions, but it was strikingly effective. The device was to be demonstrated on a willing but resistant subject before a selected group of scientists at 3 P. M. on the day after next. Manufacture had not yet begun.

The two Shallcrosses listened in at the Philadelphia laboratory, and from that moment took unusual precautions. First they

checked over their weapons. Each carried in his belt one of the police-type hand projectors issue on the permits. The other, fashioned by Original on the nights he stayed up, each carried disguised as, or in, his belt.

The physician had carefully taken out the hundreds of thin battery plates of each of the two other projectors. He had cut them down, wired them in the shape of an ordinary belt, and covered them with a thin layer of leathroid.

Then he had made a new small reflector. This he placed alongside a button with a safety catch at the base of the buckle on the side turned toward the trousers.

The resulting weapon was of limited charge, range, and angle of throw, but it might be decisive at close range in an emergency. Possession gave them the feeling of confidence which they badly needed. Without any help, they were going to raid the Sarconi's main laboratory to find the key to the original Diana. . . .

They made sure the entrance door was left unlocked at all times. They ate their meals in a small room adjoining the laboratory and never went out. A hired actor who looked like the popular conception of a professor got rid of the unwanted curious.

They were fishing for one certain fish, and they had high hopes he would come to their bait. The Sarconi had said they had no assistant. The Shallcrosses prayed one of them would come himself—soon—

And the fish came! He arrived by air, late the next afternoon, parking his plane on the roof. The two Shallcrosses were in their little room when they received the prearranged buzzer signal which indicated his arrival. At once they jumped to the peepholes they had made in the door.

The front actor performed his part perfectly. He made no statements. He only grumbled at being disturbed. With apparent reluctance, he led his single visitor to the back of the laboratory, close to the door behind which the Shallcrosses were hiding. Together, the two young men jumped out at Dr. Sarconi, projectors in hand.

"Raise your hands," snapped the original.

THE tall, lean Sarconi's eyes narrowed as he obeyed, but other than that he showed no surprise.

"So it was just a ruse to get me here," he said. "Well, I half expected it."

The duplicate rapidly searched him and removed a ray projector. Then they bound his hands with wire.

"Now, up to the roof," the original commanded. "You're going to take us to your laboratory."

"Kidnaping?" sneered the big man. "The police will be interested in this."

"They'll be more interested in the fact that you've just kidnapped a Diana and one of me to make more copies!" retorted Shallcross Duplicate.

At this the Sarconi smiled icily. "Then I'll go quietly, Bright Eyes," he said.

They chose his plane, Shallcross Original taking the pilot's seat while the duplicate and the Sarconi sat in opposite corners of the back seat. Duplicate held his projector on the big man at all times. The heli-

copter blades shot up and began whirling. The plane rose and started forward as the propelling screw bit in. Then the 'copter blades folded back and they were headed upward in a steep climb.

"Where?" asked Original.

"North," the man said rapidly with apparent willingness. "To Canada. Then on a thousand miles to Minto Lake, near the east shore of Hudson Bay. There are maps in that compartment. But if you prefer, I can give you the dial settings which will bring the plane there automatically, without your attention." He added contemptuously: "Then you both, can keep a projector on me."

"You're very obliging," rapped Shallcross. "But I prefer not to let you use me to send out a warning signal. I'll pilot her myself."

When he began to wonder, he grew quite anxious. Why had the man volunteered so much before they were away from the big eastern cities?

"If you've given the wrong directions, it will be just too bad," Original threatened coldly.

For two hours, at five hundred miles an hour, the plane drilled through the stratosphere. Hudson Bay appeared on their left, an ocean of dark metal stretching out to the horizon beneath the lowering Sun. Almost cheerfully the Sarconi looked out of his window and indicated landmarks.

At last, with both hands, he pointed to their destination.

FROM five thousand feet the pilot made out a tiny group of buildings, lonely and almost smothered in the deep green of the virgin forest.

The Shallcrosses decided to ground the plane a mile or so away from the laboratory and approach on foot.

Shallcross Original banked sharply to the right, or rather he set the controls for such a bank. But the plane did not respond! The engine kept running and the controls moved as they should. The plane, instead of obeying, set off on a slow descending spiral to the left. . . .

With alarm he glanced back at the Sarconi. The man's hands were still tied, the duplicate's projector still covered him, but now he was sneering.

"The plane doesn't obey the controls," Original announced to his duplicate.

"Oh yes it does—but not your controls!" spoke up the Sarconi. "We really are not quite children. We had to investigate that radio mention of a conditioner, naturally. But we half expected to find you waiting, so we took the most elementary precautions. You should have flashed a certain signal five minutes ago. Since you did not, my identicals, waiting and watching, have thrown out your controls from the laboratory by radio. Now they are bringing the plane down themselves."

Both Shallcrosses looked anxiously below. The Sarconi looked too, quietly, eyes glittering. As the plane circled lower, it grew darker, but the buildings showed up larger and more distinctly.

Several little dots were moving expectantly around the landing space. It was true—

the Sarconis were waiting for them!

The Shallcrosses knew they were helpless. They had projectors. Their prisoner's hands were still tied. They were still in the air in a fast plane. But they were being drawn steadily, helplessly, down into the waiting hands of some of the most unscrupulous men on Earth.

The 'copter vanes shot up and began spinning. Gently the plane settled in the landing space and braked to a stop.

All around them were tall, gaunt, sinister looking figures, large projectors in their hands.

The young men had no chance at all. They looked at each other and laid down their weapons. The door opened. They were pulled out, searched, hustled up the stairs of the nearest building, and pushed into a dim room.

"Yeah," Shallcross Original said bitterly, when the door locked behind the Sarconis. "We're both geniuses."

"Sure we are," Duplicate replied in disgust. "They're just a little smarter than we are, and they hold all the aces."

LITTLE light entered the large prison cell. Three walls, the floor, and the ceiling were of some copper alloy, as were the thick bars that crossed their one small window and the entire corridor side. Along the back wall and at right angles to it were a dozen cots.

In a few seconds, as their eyes grew accustomed to the twilight dimness, they saw they were not alone. Three men lay asleep on three cots. A fourth sat in the corner, perched tensely on the edge of his cot watching them curiously. As their eyes fell on him he rose and approached them. Then they saw that he was another Shallcross!

"Are you the two Shallcrosses who were left in New York?" he asked cordially, with the Shallcross voice and manner.

"Yes. And you're another copy?"

"I'm Shallcross Number Four, a copy of the duplicate—whichever one of you he is. The Sarconis produced me after a raid they made on you several days ago. I suppose you saw the scabs. These sleeping men are copies made from me. They have already been subjects of the Sarconis' experiments. So far I have been used only as a sort of master model for the making of Shallcross copies. They're the ones who are used as subjects."

He spoke almost like a host. The two newcomers gave him the most intense attention.

"Have they made any others?" asked the duplicate.

"Dozens—the place is hell!" Number Four exclaimed, showing for the first time his concealed fury.

"And is there a Diana here?" fired Shallcross Original at him anxiously. "Have they made other copies of her?"

"Some of the others saw one Diana," was the reply. "But no one has seen more than one at a time, so we doubt if there are other copies of her. I don't believe they are experimenting on her. They'll save her for the perfected technique. We Shallcrosses are the guinea pigs in its first stages."

"Is it the conditioning problem?" asked Duplicate.

"Yes."

"Are they succeeding at it?" the duplicate went on. "Tell us all you know. Please!"

"They're succeeding, all right," answered Number Four gloomily. "At the rate they're going, they'll have the five Dianas—or five others—in love with them in a month! I've talked with most of the subjects used, and know pretty much all they've gone through. The first approach involved surgery. A great many died or were hopelessly maimed. Dead and useless alike, all the failures were taken to the incinerator. Yes—to the incinerator! More and more of them, day after day!"

He stopped to recover himself, then spoke again low and bitterly.

"Listen!"

The two new arrivals did so, every nerve fully awake. It was dark now, they could see nothing, and the sudden silence seemed like that of the tomb.

Then it was cut by a faint sigh from beyond the wall in the next cell—a sigh ending in a single low sob. After a little while there was another. Number Four spoke again, this time in a whisper.

"There are three or four of them there, the worst cases—all that're left of the surgical approach. They have incisions in their throats."

As his words died away, there was a clang of metal down the far end of the corridor. Number Four pulled the newcomers over to the rear wall. A beam of light flashed from the direction of the noise. Footsteps, coming in their direction, stopped in front of the next cell and were followed by the sound of a key in a lock. They heard the door creak open, then pain-distorted words which they could not catch.

Other footsteps entered. All the men going into the cell were Sarconis. The Shallcrosses, peeping now at an angle through their bars, saw a wheeled, two-level table come to a stop. Bodies were brought out and placed on both levels. Then the tables were wheeled out of the building and all was as before.

CHAPTER VIII

The Psychological Approach

SHALLCROSS ORIGINAL and Duplicate turned to Number Four.

"Is that what it was?" Original strangled. "The incinerator?"

"Yes," was the bitter answer. "With benefit of a hypodermic."

"The devils!" the two new men cried out together.

But Number Four hushed them into silence at once.

"Don't make an outcry," he warned. "It would do no good, and might only make things worse. Those poor fellows are only four out of dozens. They are the last of the surgical cases. The new experiments are psychological. They're worse in one way, but at least they don't have that appalling mortality rate."

"It makes my blood boil," hissed Shall-

cross Original ominously. "What is this new psychological approach?"

"It's based on a synthesis of the findings of the Behaviorists and Pavlov. You know the Behaviorist school. They insist on the objective approach. Pavlov accounted for all behavior by the conditioned reflex. Thinking itself is only unverballed speaking, learned by inhibiting the sound part of the process, the Behaviorists say.

"But although the sound is inhibited, the vocal organs still move, just as they would in forming the words being thought. This movement in young children and lip readers can be seen with the eye. It decreases as the child grows up. But even in the adult it is still measurable.

"The Sarconis are taking advantage of this fact. Their first experiments were toward the invention of an apparatus to be placed through the throat and in the mouth. It would record the changes of position of the tongue, cheeks, throat, and other parts of the speaking apparatus in talking, and translate these pure movements into words. This approach involved surgery, hence the incisions in the subjects' throats.

"They succeeded in this. Their next step was to make an apparatus that would do the same thing when attached to the outside of the throat, without incisions and without anything in the mouth. In the last few days they certainly have refined this second apparatus.

"It will pick up and translate as speech the combined minute emotions of all the parts of the vocal apparatus which are involved in sub-vocal thinking. Now they have the subject in one room, the receptor on his throat. In the next room is a diaphragm which delivers his every thought!"

ALL three Shallcrosses were silent for a moment. As doctors, they could readily understand and appreciate the incredible work involved.

"You've certainly got to grant the Sarconis plenty of genius," admitted Shallcross Original. "This is on a par with the original Sarconi's earlier inventions. But I don't see how this bears on their attempts at conditioning."

"I'm coming to that," Number Four went on. "You remember the conditioned reflex experiments of Pavlov? In theory they were based on—or I guess I should say they elicited—several simple facts. I'm no psychologist, and neither are you—naturally—but one of the facts works out something like this. One stimulus may be made to inhibit another in its effect on behavior.

"Put some meat before a hungry dog and he will eat it. Dog plus stimulus equals pleasure. Next time put the meat in a piece of apparatus so that the dog, reaching for it, suffers a painful electric shock. Repeat this second experiment a hundred times and the dog will be pretty well conditioned into a fear of meat. Dog plus stimulus always means pain. By changing the stimulus the original emotion has been conditioned. The thought of meat is no longer pleasant.

"Now I can tell you what the Sarconis are doing with their latest subjects—and an electrode. They take a Shallcross copy to

their laboratory. This copy, of course, loves Diana. Ordinarily he thinks about her a great deal. But they attach an electrode to his spine. Now, every time he thinks about her, he receives an immediate shock of great pain. Time after time it happens. Think of Diana, immediate and terrible pain.

"In a matter of time the pleasure of thinking about Diana is replaced by a fear of anything reminding him of her. The conditioning, as it advances, cannot fail to make him hate the woman who is responsible for his unending torture. He will definitely not love Diana any longer!

"That is the theory and method on which the Sarconis are proceeding now," Number Four concluded. "Every time Diana's name or anything concerning her comes over the vocalizing apparatus, a painful electric shock is imparted to the subject. It happens instantaneously. We think it is done automatically.

"On the sounding of certain words, a device opens a circuit and lets the current through. And on top of that, even vaguer thought references to Diana bring these shocks. In these cases one of the Sarconis, who is sitting and listening, releases the current himself."

SHALLCROSS Original gasped in horror, and Duplicate cried out with equal feeling.

"But in time that may drive the subject crazy!"

"It may," agreed Number Four. "Out of a number of attempts, one or two subjects ought to be obtained who will show a complete amnesia for Diana, and all associations and emotions connected with her. Then the first half of the Sarconis problem—making the subject fall out of love—will have been solved. All they have to do then is duplicate the subject on whom the conditioning has been successful—and take the others to the incinerator."

"But how can identical subjects show different results?" Original asked in bewilderment.

"The subjects are identical only at the moment of their reproduction. Beginning then, their experiences differ in a thousand ways, and divergence results. The fact that you could ask me your question shows this. The fact that all we copies do not try to do and say the same thing at the same time is further proof."

"And this approach seems to be working," said Shallcross Original, as if he found it hard to believe it.

"The copies on the cots show results already," Number Four said. "Look." He went to one of the sleepers and joggled his shoulder until he awoke. "Diana's here," he whispered.

At the name, the man cringed backward and cried out as if in pain. They waited, and in a moment he was again asleep.

"He can't remain awake—not by himself," Number Four explained compassionately. "Nervous exhaustion. I don't think any of these three can stand much more."

"I could strangle the Sarconis one by one with my bare hands!" whispered Shallcross Original passionately. "And they are the

men who hope to make Diana love them!"

"Can you imagine them subjecting the woman they love to that!" whispered the duplicate. He added: "Why are they experimenting with men instead of women?"

"I guess the psychological factors are the same," Number Four answered. "And probably they enjoy the irony of it—inducing their successful rivals to fall out of love with Diana, then destroying them—all on the way to conditioning her to come to love them. Perfect, from their point of view."

"They'll have to force one of the Shallcrosses to fall in love with some other woman, to complete the technique. How do they expect to do that?"

"I don't know, but I'll bet they manage it," answered Number Four. "If we can't somehow stop them."

THE conversation was interrupted by another clang of the door at the end of the corridor, followed by the hollow echoes of footsteps. Several Sarconis with flashlights appeared at their cell door. In the sudden light they opened it.

"Back to the wall, you three," ordered one of them, gesturing with a projector to the three Shallcrosses on their feet.

Another's light played in their eyes, blinding them. They obeyed.

The Sarconis wasted no time. They aroused the stuporous sleepers and escorted them, only half awake, out of the cell and the building. As the door clanged to again Number Four explained tersely:

"They're being taken for another treatment."

"This is awful!" exclaimed Shallcross Original. "We'll have to find a way out of here."

"You talk just the way all the other copies and I did at first," Number Four answered bitterly. "Now all but we four are nothing but a little dust. No, without weapons there seems no way. The doors to the outside of all three buildings are locked. They're opened from one of the labs. Sarconis are everywhere, each one hard, cold, brilliantly calculating. They're especially on guard against Shallcross' escape attempts now, after what happened in New York."

"We're not entirely without hope," said Shallcross Original cryptically. "Duplicate, where are you?"

He took his copy into a corner and whispered so that Number Four could not hear.

"Don't breathe a word about our belts to any other Shallcross copy," he warned. "The Sarconis would be sure to learn about them when they were in getting conditioned."

"And that goes for Number Four, too," agreed the duplicate. "Every copy made from him would know."

"Yes. How's your belt? Seem all right?"

"As far as I can tell. I'm ready."

They started back, but the duplicate held him back with a serious afterthought.

"Original," he said, "sooner or later you or I will be taken into the laboratory. I doubt very much if we'll be able to keep from thinking about our belts. That's one thing no one can do—help thinking about something so important. The more you try

the more you'll keep remembering."

"You're right," was the thoughtful answer. "It makes me a little scared. But it means just one thing. Whichever one of us is taken in first must make the attempt right away. We won't have a second chance. We'll do it in the lab if we can, for that's where the building doors are controlled. There ought to be several Sarconis there, and if we're lucky we can get every rotten one of them."

WORRIEDLY they turned away and rejoined the other. He asked no questions, nor did they volunteer any information.

"Why don't you two try to get some sleep?" Number Four suggested after awhile. "Sleep?" Original retorted. "I won't sleep till I get out of here!"

They talked in low voices in the dark. After what seemed a long time, two Sarconis returned a subject to the cell. One held a flashlight and projector while the other supported their unfortunate victim to the nearest cot. They left without speaking a word.

The three unharmed Shallcrosses went over to the subject. He was breathing hard, and making short jerky movements as if his nerves were out of control. Even as physicians, there was nothing they could do, though Number Four spoke soothingly to him. The man gave no sign that he heard, and soon seemed to be asleep. The others conversed in low tones. But when one mentioned the name "Diana," the man turned violently on his side.

"Oh, the monsters!" he cried. "They had—They had—had—had—"

He seemed unable to complete his thoughts. Mouthing deliriously he subsided, and for awhile there was no sound but a few gradually diminishing slight spasms and sobs.

After a long time, when he was sure the subject was asleep, Number Four breathed another bit of explanation.

"That's the way it progresses. He was trying to say 'Diana,' but couldn't. Not even here, with us."

After another hour the Sarconis returned with a second subject and again left without speaking. There was no outburst from this one. But from his excessive rolling, jerking, and broken breathing, before he was able to sleep, the three watchers knew that his torture had been even more fearful.

"He had twice the dose," Number Four said very bitterly. "The third will have three times as much. Very scientific. They're finding out just what dosage gives the best results."

"And that's what they'll give Diana!" Original exploded. "To make her love them!"

"Take it easy," Number Four admonished. "One of us will stop them eventually. Keep your wits about you when it's your turn. Be ready. We're all waiting. Some time there'll be a chance."

After another interval, three Sarconis returned with the third subject. He lay on his cot in the position he fell in, and did not move. But the gaunt fanatical men did not

go away alone. They fastened their strong bony fingers about the arms of Shallcross Original and Duplicate.

"Come, you two," one of them said. "You've been an unmitigated nuisance. But now I think we can make you useful."

The pair of Shallcrosses were abruptly hustled down the corridor and through a tunnel-like connection into the next building. Their turn had come, and with it their chance.

This might be their only opportunity to strike for love, marriage—for life itself. . . .

CHAPTER IX

Treatment and Cure

THEY passed through a lighted hallway finished and paved with builder's plastic. On both sides, open doors afforded glimpses of beautiful laboratories whose equipment must have cost millions. The fourth Sarconi could be seen at work, moving rapidly and efficiently, as usual.

The two prisoners were finally pushed through the last door on the left. They found themselves in a room furnished somewhat like a private physician's surgery.

They remained in the hands of their three escorts, none of whom wasted a second. At once the Shallcrosses were made to strip to the waist and sit in two high-backed wooden chairs. They faced a shiny screen at some distance from the corner of the wall.

Then, rapidly and effectively, they were bound to the chairs—body, legs, arms, and neck—and then gagged. Neither reached for his belt nor made any protest, for it would have been utterly useless. One of the Sarconis kept them covered with his ray projector at all times and watched them like a hawk.

The Sarconis stepped to the backs of the chairs. They felt something cold and metallic—the shock electrodes—being fastened with pieces of adhesive tape to the lumbar region over their spines.

Next they imagined would be the thought reading apparatus for the neck. But there was another thing to be done before that. One of the Sarconis attached to each of their wrists a stout wire bearing a metal tag.

By twisting his head, Shallcross Original could just make out the number 41 on his. He understood what that meant. He was the forty-first subject of the conditioning experiments. There were now only six Shallcrosses left. So thirty-four or thirty-five others, exactly like himself, had preceded him. Now they were gone, gone for all time, on one-way trips to the laboratory incinerator.

Would he be the thirty-sixth? For a moment fear clutched him, but then he got hold of himself again. Resolutely he determined he would rather die in some attempt at escape, however hopeless the chance.

The Sarconis were now attaching to their prisoners' throats the thought reading receptors. The wires trailed down around the Shallcrosses' backs to the floor. Composed of joined duplicate units, each receptor was the size and shape of a tiny musical tympanum. They were placed on the front of the neck, just above the Adam's apple. Like

the electrodes, they were held in place with adhesive tape.

When they were satisfactorily attached, the Sarconis went into the adjoining room. One, however, remained a moment, making notations on a paper in a clip-board.

BOTH Shallcrosses gathered all their energies in mighty resolves not to think of their projector belts or anything else connected with their hopes for escape. They went further and tried to banish thought and feeling completely. Only then did they really realize how impossible it was to do such a thing.

The face of the Sarconi, the apparatus in the room—everything they laid their eyes on—seemed quickly to lead their thoughts back to that belt. One subject alone seemed to offer a possibility of success—the thought of Diana. But that thought was to be made intolerable by the very purpose of the process now about to begin!

The remaining Sarconi stood to one side and watched them with cold curiosity.

"So that is one of the monsters who through torture wants to make himself loved by Diana!" Shallcross Original thought.

But at the thought of his loved one, an excruciating pain shot through his spine. It threw him against his bonds, beyond control.

For just an instant the shock lasted. Then tensed, every nerve quivering, he waited for the next. It did not come at once.

He twisted his head to one side to see how his duplicate was taking it—in time to see him strain out in anguish against his bonds just as he had done. Tears of rage flooded his eyes. Then he must again have thought of Diana, for again came the maddening sting pain.

There was another free interval, then again the pain. Again freedom, again the pain. The minutes passed. It seemed he could not keep Diana or thoughts connected with her out of the orbit of his consciousness. The very conditions and purpose of the process kept bringing them back. There followed pain, pain, pain. And then suddenly, without knowing the steps that led to it, he found himself singing a wretched piece of doggerel.

They laid him gently on the bed
And left him there for dead, dead, dead!

Singing kept back the forbidden thought of Diana! He repeated it, louder and louder, with vocal abandon. Only a mumbling sound came through the gag, but he worked his vocal apparatus through its maximum range of movement.

"I'll break their translating diaphragm!" flashed through his mind.

There were few shocks now. He snatched a glance at Duplicate, and heard him too mumbling, doing the same thing. Five, ten, twenty times they sang and thought the lines.

They laid him gently on the bed
And left him there for dead, dead, dead!

His escape then was over. Light flooded the other side of the large, shiny screen he was facing.

He saw Diana tied in a chair! And then the shocking pain swept over him in one continuous nightmare. In a flash he understood. The screen gave one-way visibility. He could see Diana but she could not see him. She sat quietly, apparently unaware of what was happening on the other side. He could just make out her bobby-pin wedding ring.

There followed a time of madness. He shut his eyes, but in spite of himself he opened them at times. The shocks stung him continuously. He began the verse again, opened his eyes. Buckled with pain, he closed his eyes and sang desperately. This time he sang a new song.

"Eyes shut! Eyes shut! Eyes shut!" he mumbled for a long time in a monotonous rhythm.

Time became eternity. He was dead, and in some undreamed of hell. His eyes opened. There was the lovely, unsuspecting Diana. Then pain!

It went on too long. He fainted.

When he came to, he found his face and body wet with water applied to restore him. One Sarconi was releasing his bonds. The electrode, thought reading receptor and gag had been removed.

He saw the duplicate, still bound, buckling with a continuation of his torture. The light behind the screen was gone, and with it Diana. He got shakily to his feet, and the eyes of the single remaining Sarconi watched him with cold interest.

Not till then—and he thanked God for it—did he think of his belt. Diana and the pain had sent it completely from his mind. Now was the time!

He swung to the Sarconi, his left hand fumbling to the buckle of his belt. With one arcing movement of his body he let him have the ray. The man was so close that he fell without a word. But Shallcross Original had regained consciousness too suddenly. In sheer impulsiveness he had rayed down the Sarconi.

Now that it was over he just stood motionless, a little confused. The duplicate, he saw, was gaping at him with a look of eagerness on his exhausted face.

His hesitation nearly doomed him then and there, for Duplicate's thoughts were on the projector belt. Another Sarconi came running from the adjoining room, hand groping for his projector and an alarmed look on his face.

SHALLCROSS acted just in time. He turned and brought him down. Then quickly he got hold of himself. Buckle in hand he ran to the other room, found no one there. He closed and locked the corridor door, ran back and locked the corridor door of the first room. Rapidly he began releasing Duplicate from his apparatus and bonds.

They panted and wasted few words. When Duplicate was free, both hastened to bind the two paralyzed Sarconis with their own ropes.

"We have two," Shallcross Original panted. "But there are two more!"

"The third who was here took Diana out a minute ago," the duplicate said rapidly.

"We'll open the doors and each hide behind one, then ray him as he comes in."

"Yes," agreed Original. "Or no! I have an idea. We'll get something—get a chair—and when he comes through hit him on the head. I don't want him paralyzed."

"Why?" asked Duplicate.

"Explain later!" was the hurried answer.

"Quick, take something and get behind the door in the other room. Open it. I'll take this door. We'd better get their large projectors, though, just in case."

They found them. Then Original picked up a chair, unlocked the door, and placed himself where he would be behind it when it was pushed open. Duplicate did the same in the other room.

Breathing hard, the two men waited.

For many minutes the Sarconis did not come. But those were valuable minutes, for they enabled the two men to recover some of their strength and faculties.

When a Sarconi did push through Shallcross Original's door, he got the heavy chair on his head, and fell like a log. At once both men locked their doors. At Original's direction, they lifted him to the chair and bound and gagged him as they had been. Original explained what he had in mind.

"First I want novocaine," he said. "In its syringe."

Duplicate found it. Original made subcutaneous injections above the Sarconi's out-jutting Adam's apple and a little to each side, down the neck. Then Duplicate handed him the receptors of the thought reading apparatus.

HE taped it at the place on the Sarconi's neck which corresponded to the two ringed indentions still on the neck of the duplicate.

"Now you go in the other room and look over the vocalizing part of the apparatus," ordered Shallcross Original. "I'll bring him to and taunt him. When his thoughts start coming through, set the volume low. He mustn't suspect we're listening in. Signal me, but stand well back from the door. He mustn't even know you're there. Then strain your ears and we'll find out what we can learn. We need hints on where the other two Sarconis are, how we can keep free of them, how we can get out—anything!"

Duplicate left and Original set about the reviving of the Sarconi. Cold water from the sink in the corner did it. The man came back gradually, and began to mumble through his gag. The duplicate motioned from behind the doorway. Then Original placed himself just in front of the Sarconi and laughed at him, projector in hand.

"Brainy guy, eh?" he taunted—but not loudly. "A genius. Invented a Duplicator and a Conditioner. Wonderful! And since one Sarconi is a genius, think what five must be! Five geniuses, all in one lab!"

The man squirmed and mumbled, and his face turned red. The original went right on, saying anything that came to mind.

"But after New York you still thought you could keep a Shallcross prisoner! That looks like an error of judgment. I don't know, but at the moment I don't feel like a prisoner. Could you geniuses have slipped

up somewhere? How can five geniuses all slip up? It certainly seems that I'm free and you're the prisoner."

He laughed in the man's face.

"The other Shallcross just left to get the Royal Canadian Flying Police. We'll have a grand time tracking down the other two Sarconis. Just like hunting rats when we were kids!"

He stopped, momentarily out of things to say. The Sarconi was purple with rage, and he was mumbling so loudly that he might be heard in the corridor. As Shallcross Original wondered what to do about that, he caught sight of the duplicate frantically beckoning to him. Casually he left the Sarconi and went into the other room. Duplicate excitedly pulled him to a corner and whispered.

"There're seven Sarconis altogether, not five! And there's a back entrance, hidden somewhere in this room. His thoughts were on the others, wishing they'd come. At the first suspicion that there's anything wrong, they'll all come crowding in."

"Then let's find it," whispered the original. "Thank God we learned about the other two!"

CHAPTER X

How to Know Your Wife

DUPLICATE was quickly examining the walls. Original knelt down on the floor, looking for a trap. Duplicate found the place. It looked like a closet door, but on the other side were stairs leading down into a lighted room. From the small part within view, it resembled a storeroom.

The two paused, wondering if they should risk going down. But even as they hesitated the light went out. Someone was down there.

"They're coming after us!" breathed Duplicate, quickly closing the door.

"We'll hide," whispered Original. "We'll get them as they come in." He jumped behind a large flat-topped desk, the only concealment that offered. Duplicate was right behind him. "We'll try to let everyone inside that's coming, then let them have it. We may get all the rest of them!"

Quietly, pressed close to the floor, they waited. Without the slightest warning noise, the door slowly opened and the face of a Sarconi appeared. He swept the room with his eyes, then pushed cautiously in. Immediately behind him was another. That seemed to be all. Each carried a projector.

Together both Shallcrosses swept their projectors through a ninety-degree arc. Instantly the men slumped to the floor and lay still. For a moment the ambushers waited, but no more came. Then, very quietly, Original got to his feet and tiptoed over to the door. He swept his ray back and forth through the darkness. There was no answering sound of a falling body. So he carefully closed the door again and pulled against it a cabinet containing instruments.

They scurried about the room looking for rope. Finding none, they bound their two new captives with wire. It then became important to know whether the conscious Sar-

coni, in the chair in the other room, was aware of what had transpired.

With Original at his elbow, Duplicate switched on the vocalizer connected with the Sarconi's throat. The faint metallic tones of his subvocal thoughts came from the diaphragm, in the man's own voice. The words, in his anger, were unprintable.

But between the curses and violent threats were phrases which told plainly enough that the man had guessed what had happened. He even knew that his thoughts had been read!

THE Shallcrosses debated what to do next. Should they make a break out one of the corridor doors, seek a way out through the closet stairs and lay for the remaining Sarconis? Or should they go to work again on the one in the chair?

They decided on the last. Duplicate took position as before at the vocalizer. Original returned to the other room. The first thing was to goad the captive into revealing where the remaining Sarconis were.

He planted himself in front of the bound man and smiled, preparatory to giving a taunting laugh. But the laugh died in his throat. He had heard an almost imperceptibly faint sibilant sound behind him, apparently from outside the door. The Sarconi must have heard it too, for he began mumbling as loud as his gag would permit, as if to attract attention.

Original tiptoed to the door and listened. All was silent there. But he was positive, now, that the sound had been a whisper. At once he was back with Duplicate.

"The last two are outside the door of the other room!" he breathed. "I heard one of them whispering. That means the other's there too. Now's our chance to go down through the closet entrance and get them. If we hurry, we'll catch them in the hall!"

Duplicate's eyes gleamed as he helped Original move aside the cabinet and followed him down the dark stairs. The Sarconi's thoughts made a low profane staccato that followed them all the way to the bottom.

A faint light came from an open door to their left. They made for it, passing between dim shapes which they realized were boxes of stores. They found themselves at the corridor of the main floor. To the left could be seen a stairway.

Rapidly, projectors ready before them, they catfooted to it. In a moment they were on the floor above, at the corner made by the walls of the stair well and the upper corridor. Around the corner, if they had not gone away, should be the two Sarconis.

Close to the edge, Original listened, scarcely breathing. Then, gradually, a prickly sensation ran over his body. There was nothing definite, but he had the clear feeling that just around the corner stood someone else, listening like himself!

Almost reflexively Original stuck his ray projector around the corner and pushed at the button. But quick as he was he was not quick enough. He drew his hand back paralyzed, and the weapon dropped to the floor. And then in the same second, to his utter confusion, an authentic Shallcross copy

appeared before him.

All three Shallcrosses stood gaping at each other. Other Shallcrosses appeared from around the corner!

"Who are you?" Duplicate asked.

"Why, he's Number Four!" exclaimed Original, his eyes on the man's wrist tag.

Number Four looked at the two incredulously.

"You're the two new arrivals?" he asked.

"Yes," replied Shallcross Original. "We escaped. We got five of the Sarconis, but there are two more. There were seven altogether."

They had been speaking in whispers, but at this news Number Four discarded caution and let out a loud whoop of joy.

"Then we've got them all!" he yelled.

"Pipe down, you fool—" began Original. Then he got the import of the other's words. "What do you mean?" he asked. "There were two free ones. Where are they?"

"Tied hand and foot back in our cell!" exulted Number Four, and then he explained. "We waited for them, clinging to the bars over the cell door. Two of us. The others here made a racket. Two Sarconis came, and we dropped on them like the roof. And then we came looking for the rest."

"Thank God!" breathed Duplicate.

But Shallcross Original showed little relief.

"We're free, and there are six of us Shallcrosses and six Dianas," he said. "But we're nearly as badly off as before. There can't be any marriages unless we can determine just which Diana is the original one. I'm already married to the original Diana, remember. You five are only engaged, if you're even that."

At his words a blanket of chill soberness fell over the group. How could they hope to discover how to distinguish the original Diana from the others when that problem had already stumped the whole world?

"But we're not licked yet," continued Shallcross Original thoughtfully. "Come with me."

HE led the others to the lower floor and up through the back entrance of the laboratory. The curses of the Sarconi in the chair were still coming in over the vocalizer. Original explained to the others how he and Duplicate had turned the device on the Sarconi to their own advantage.

"There's just a chance that he can be made to help us out here, too," said Original. "First we'll find Diana and bring her here. And no love stuff if one of you find her, for I suspect she's the original—my wife!"

The five willingly opened the corridor doors and joined him in a search of the buildings. Soon they were back with the surprised and very much excited Diana.

Shallcross Original could hardly resist embracing her, and he saw that Duplicate and Number Four felt the same way. The three partly conditioned subjects alone showed a slight but clearly temporary diffidence. He told Diana what had happened, and explained in part what he was now about

to attempt. She smiled happily.

"Now Diana and I are going in to the Sarconi," he told the others. "You had better stay in here, for you might distract him. Turn the vocalizer on so I can hear, myself, what his thoughts are."

With these words he led Diana to a position in front of the helpless Sarconi in the other room. That the man was still in a rage was shown by his purple and contorted face and loud mumblings. Shallcross Original put his arm about Diana's waist and laughed in the scientist's face. The man strained forward against his bonds.

"You see?" said Shallcross Original to him. "It all ends happily. The original Shallcross finds his original Diana!"

In a split-second the Sarconi's thought reaction came out over the vocalizer.

"How does he know that? My thoughts haven't been on that subject!"

"It's so," Shallcross Original thought exultingly. "Then this is Diana Original!"

His joy showed in his face. He went on aloud.

"Any child would have assumed that the original Sarconi would have kept the original Diana for himself," he told the bound man. "So she, of course, would be the one he would bring here after his raid on New York. But an assumption was not enough. I needed evidence. It's too bad the mark placed on the original Diana, when she was unconscious, is so conspicuous."

"It was not!" the subvocal voice rasped instantly over the vocalizer. "The very tiniest scar on the back of the neck. No one could possibly notice it!"

Then, a second later, the Sarconi realized. "Tricked! Tricked!" exploded out of the vocalizer.

BUT before he had finished speaking, Shallcross Original was looking closely at the back of Diana's neck. There was a scar there, a thin, almost invisible number 1!

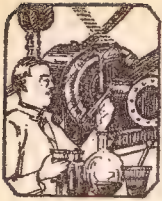
"Proof," he exclaimed, and folded Diana tightly in his arms.

The air went corrosive with the Sarconi's curses, but the two were oblivious. They did not even notice when the copies in the other room cut off the vocalizer. But Shallcross Original came to when the others raced in excitedly.

"Fellows," he said then, joyously, "let me present my wife, the one and only Diana Original. We intend in a few hours as possible to leave on a very belated honeymoon. Until we get back, you, Duplicate, and all the others can use my apartment. But then you'll have to get out."

"Better see a minister and get large places of your own. There are five Dianas waiting for you in New York, lovely girls, only a trifle less desirable than my wife here. Four of you have never met these girls, I know. But science is wonderful. I make predictions! Good luck to you all."

"Only one little thing. Have your Dianas tattooed on the wrist so you can always know which is which. For heaven help any of you chemical compounds I find monkeying around my wife!"



Science Questions and Answers



FANTASTIC INSECTS

Is it true that there are some insects which are able to consume substances that are deadly poison to ordinary creatures, such as opium, tobacco, and strychnine?—H. P., Miami, Florida.

Not only are there insects that can consume poisonous substances and remain immune, but there are some that even eat these things normally and thrive upon them! In his book, "Lone Wolves of the Insect World," Malcolm Burr reports the existence of the little beetle, *Niptus hololeucus*, of which no less than one thousand five hundred and forty-seven specimens were taken out of a bottle of casein that had been stoppered for twelve years. These beetles seemed to be indestructible, for some lived quite happily in a tin of leaves of the powerful *Datura stramonium* for fifteen years; and they have been known to live in the corks of the very cyanide bottles that entomologists use for killing their specimens.

One of the biological curiosities of the world is one member of the family, *Psilopa petrolei*, which is so chemically resistant that it can survive indefinitely in cedar oil, withstand for twenty minutes the action of strong alcoholic picric-formol, and, most astonishing of all, live regularly and thrive in crude petroleum.—Ed.

PHENOMENON OF TASTE

Do all human beings have the same taste perceptions? In other words, does sugar taste the same to everyone?—A. G., New York City.

Curiously enough, human beings have different sensory perceptions—which is the reason why no two human beings are alike. Answering your question, in a recent scientific experiment, more than three thousand people were given a tablet containing a rare kind of sugar, called mannose. Each person was asked to describe the taste of the tablet. Of the 3,000 individuals who participated in this experiment, about a quarter voted the mannose tasteless. One-third voted it sweet, 11% described it as bitter; 3% sour; 1% salty, and about one-fifth voted that it had more than one of these tastes.

These people voted differently about the taste of the same substance—because they themselves were different in their sense perceptions. Heredity is the basis of differences in the reactions of all the senses, but the environment may have influence too.—Ed.

HOW LONG IS A YEAR?

Exactly how long is a year? How long is a sidereal year? A light-year?—K. L., San Bernardino, Calif.

In general, a year is a space of time equal in length to the period occupied by the Earth in completing a circuit of its orbit around the sun. Astronomers distinguish several different kinds of years. The tropical year is the year of chronologists and the calendar, and is defined as the interval of time between two successive passages of the sun through the vernal equinox. Its length is 365 days 5 hours 48 minutes and 46 seconds.

The sidereal year is the actual period of the Earth's orbital revolution, and differs from the tropical year on account of the precessional motion of the equinoxes themselves. It is 365 days 6 hours 9 minutes 9.5 seconds in length.

The light year is a unit of linear measure, used by astronomers in stating the distance of the fixed stars. It is the linear space

traversed by light in one year, and as light moves at the rate of about 186,000 miles a second, the light year furnishes a linear unit large enough to measure even the vast cosmic distances of interstellar space.

Bissextile, or leap year, is a calendar year in which the ordinary of days has been arbitrarily increased by one, making it 366 days instead of 365.—Ed.

THE GASTROSCOPE

I wonder if you can supply me with a brief account of the new medical device, the gastroscope, which enables surgeons to study the interior of the stomach?—R. H., Washington, D. C.

Bronchoscopes make possible the inspection of the bronchial tubes in a human body; thorascopes make examination of the lung cavity possible. The gastroscope, invented by Rudolph Schindler, represents the culmination of the efforts of many inventors to find a way of looking directly into the stomach of a living individual.

The gastroscope is a tubelike device, flexible, about 2½ feet long, and a little thicker than a pencil. The patient swallows it. The end of it which is in the patient's stomach is tipped with a rubber finger, which helps to guide it. Above the rubber tip is a metal container enclosing a tiny electric light bulb, which throws its rays through a glass eyelet.

A second eyelet, directly above the first, receives images reflected from the stomach walls and transmits them through forty-eight lenses set in a flexible rubber tube to an eyepiece, which is about where the handle of the sword would be if the patient were a sword-swallower. The lenses are so arranged that the images are able to reach the eye without distortion, even when the tube is sharply bent.

The doctor turns a switch and peers into the eyepiece, meanwhile pumping air through the tube into the stomach with a rubber bulb. If the stomach were not thus inflated, its baggy, folded sides would touch the gastroscope, and nothing would be visible. When the stomach walls leap into sharp focus, due to the inflation by air, the doctor then scrutinizes the stomach for indications of suspected ailments. Thus, the gastroscope is another milestone in man's progress against the grim reaper.—Ed.

INTERSTELLAR METEORS

We're accustomed to seeing meteors, talking about them, etc. But here's one thing I'd like to know: Do meteors originate in our Solar System, or do they hail from interstellar space, enter our Solar System, then land on Earth?—B. L., Chicago, Ill.

From the results thus far obtained by astronomers, it appears that half the meteors enter the Earth's atmosphere with velocities less than 26 miles per second, while the remainder have velocities greater than that. Furthermore, those with velocities less than 26 miles a second are found to be members of meteoric showers emanating from radiant points, and hence are actually members of the Solar System.

It may be shown theoretically that any true member of the Solar System when situated at a distance from the sun equal to that of Earth, cannot have a velocity greater than 26 miles a second.

This would seem to indicate that at least half of the observed meteors are actually visitors to the Solar System from interstellar space.—Ed.



GOOD news for contest fans!

In a recent issue of **THRILLING WONDER STORIES**, when we published Raymond Z. Gallun's short story, "Renegade From Saturn," we presented a novelty never before offered by any other scientification magazine. That story had a scientific mystery for its theme. At the point when the author was about to reveal the solution to the problem, we stopped the story and invited the reader to see if he could guess the answer to the riddle for himself.

So enthusiastic was your reception of this unusual method of story presentation that we have prepared a similar feature for next month's issue. Oscar J. Friend has written a great story, "The Impossible Highway," which will offer an outstanding scientific puzzle. Put on your thinking-caps, contest fans, for there will be prizes for the best letters! See the August issue for full details!

FIND A METEORITE!

IF you found a meteorite—do you know what to do about it? Thousands of meteorites land on Earth annually, and the chances of your discovering one in your backyard are not as remote as you might think.

If you find a stone that seems exceptionally heavy for its size, it would be well to examine it carefully. A good way to obtain corroborative evidence that your find is the real thing is to take such a stone to the grindstone and grind away a small bit of surface. If you find the area thus exposed speckled with iron particles, the chances are that you own a meteorite. Or you can test your suspected stone with a horseshoe magnet. If the object is a meteorite, the magnet will be attracted to the stone.

Send your stone to the Smithsonian Institution, at Washington, D. C., for identification. If your meteorite is the McCoy, the experts there will acknowledge the fact in a letter, and they will add your specimen to their great collection. And don't forget to let us know about it!

WITH OUR AUTHORS

WE never feel shameless when it comes to bragging about our circle of authors, particularly when your letters rate these authors your favorite. Did you know that a good many of the writers who contribute to **THRILLING WONDER STORIES**, although new to scientification, are famous in other fields of fiction?

Don Tracy, the author of two recently published distinctive short stories, "The Gifts of Urs," and "Tomorrow's Hero," con-

tributes regularly to such leading national magazines as *Saturday Evening Post*, *College Humor*, and *Cosmopolitan*. . . . Robert Arthur, creator of the Abbott Family series, writes for *Liberty*, *Collier's*, and many other famous publications. . . . Ward Hawkins, author of several novelets published here, recently had a long mystery serial published in *Collier's*, which he wrote in collaboration with his brother, John Hawkins. . . . Sam Merwin, Jr., soon due in *T.W.S.* with a short story, "Exiled from Earth," is the author of a best-selling Crime Club detective novel, "Murder in Miniature."

And did you know that Leslie Charteris, author of the popular "Saint" mystery novels and motion pictures, is a subscriber to *T.W.S.*? It's his favorite magazine—and he has promised to send us a story one of these days. We're waiting.

THE END OF THE WORLD

THE world has to end some day—and present-day science can tell us how that may come about!

The prospect that the sun will "burn itself out" in a decrepit old age is so remote as to baffle all attempts to date that untoward event, even by those who are expert in manipulating astronomical figures.

And, according to Dr. Kirtley F. Mather, Harvard University geology professor, the possibility of a sudden catastrophic debacle resulting from our collision with some other heavenly body—comet, planet, star, or what you will—is definitely without foundation.

There is only one plausible alternative as to the nature of the Earth's eventual doom. One of these days, far in the future, the sun will imitate the supernovae occasionally detected among the stars. When that happens, the existence of the entire Solar system will be terminated by a gigantic explosion.

But the day is pretty far off, millions of

years ahead. That's one event we're not looking forward to!

JULES VERNE BIOGRAPHY

THE immortal Jules Verne wrote of the future, depicting submarines, airplanes, dirigibles, and many other scientific marvels. Man has realized most of these wonders, accurately foreshadowed in the writings of this remarkable prophet. All within the space of less than twenty years after they were predicted.

But it has taken man more than fifty years to pay tribute to this father of scientification. For, believe it or not, no biography of Jules Verne exists!

If you are one of the hundreds of thousands who became acquainted with the wonderworld of scientification through the medium of Verne's enchanting classics, you will be pleased to learn that at last someone has undertaken to write his life-story. That person is George H. Waltz, Jr., and his biography will be published by Henry Holt & Co.

Mr. Waltz would appreciate hearing from readers who have biographical material—letters, records, etc.—concerning the famous French author, and they are urged to communicate with him at his address, 242 East Nineteenth Street, New York, N. Y. The story of Jules Verne should prove as thrilling as his works, and we are looking forward to its publication!

AMATEUR STORY CONTEST

HAVE you sent us your first scientification story yet? T.W.S. still continues its national hunt for new stories by new authors. It is the only scientification magazine publishing stories by its own readers! We believe that every reader has an entertaining story to tell—and we'd like to see it. Six brand-new writers have made the grade so far—why not you?

Write up that pet interplanetary or time-traveling theme you've been hoarding all these years before some other author scoops you. Type it up, double-spaced, and send it to **AMATEUR WRITERS' EDITOR, THRILLING WONDER STORIES, 22 W. 48th St., New York City.** Enclose a stamped, self-addressed envelope for the return of your manuscript should it prove unavailable.

If your story is a fairly good one, we will be glad to publish it in T.W.S. Prize stories are purchased at the same rates paid our regular staff contributors. We would like to present a new contributor as frequently as possible. Why not try for the honor?

JOIN THE LEAGUE

HAVE you joined our **SCIENCE FICTION LEAGUE**? It's an active, international organization composed of the world's most enthusiastic followers of science fiction—and it fosters that intangible bond between all science fiction readers. Just fill out the blank provided on page 126.

To obtain a **FREE** certificate of membership, tear off the nametag of the cover of this magazine, so that the date and title of

the magazine show, and send it to **SCIENCE FICTION LEAGUE, 22 W. 48th St., New York City,** enclosing a stamped, self-addressed envelope.

And readers—write the editor of **THRILLING WONDER STORIES** a regular monthly letter. Tell us which stories you liked best, which are your favorite features and artists. Your suggestions and criticisms have made T.W.S. scientifiction's leading magazine. Help us maintain that leadership. —The Editor.

CHAPTER NEWS AND ACTIVITIES HOW TO START A CHAPTER

Many readers have written in to **SCIENCE FICTION LEAGUE HEADQUARTERS** inquiring as to how they may organize a Chapter of the SFL in their locale. It's really quite simple to start your own Chapter. You and two friends can organize a Chapter—if you have all previously sent in your application for **LEAGUE** membership.

Hold your first meeting and mail in a report of elections, activities of your club, etc., to **SCIENCE FICTION LEAGUE HEADQUARTERS, 22 W. 48th St., N. Y. C.** We will supply you immediately with an official Charter recognizing your group as an authorized Chapter of the SFL.

If you find it difficult to rally science fiction enthusiasts in your community, this department will give your proposed Chapter publicity. Do not hesitate to query us regarding any other League problem you may wish to voice.

LEAGUE ACTIVITIES

Never before in the history of fandom has the **SCIENCE FICTION LEAGUE** seen such activity as it is experiencing these days! James V. Taurasi, popular fan, has undertaken the one-man job of stimulating organization among fans all over the country, and he is meeting with great success.

And plenty is happening on the fan-front, he reports. The highlight of the 1940 year will be the Chicago Convention in which our Chicago Chapter, under the leadership of W. Lawrence Hamling, will play a prominent part. The Los Angeles SFL announces the beginning of a bi-monthly fan magazine, **SHANGRI-LA**. . . . The Queens SFL is busy at work on a movie of fan activities. . . . And **VADJONG**, the official organ of the Queens SFL, will resume monthly publication. . . .

NEWARK CHAPTER

Sam Moskowitz is planning to form a Newark Chapter of the **SCIENCE FICTION LEAGUE**. Many fans of New Jersey have promised to join and this chapter is due to become one of the most active chapters in the country, judging from the quick start.

Plans are already being laid to reissue Taurasi's **FANTASY SCOUT** as the official organ of the Newark SFL. The new **FANTASY SCOUT** will be a joint publication of Moskowitz and Taurasi. Being close by the Newark SFL will work closely with the **QUEENS SFL** in all programs and projects. Members of the SFL in or around Newark are asked to contact Sam Moskowitz at 603 S. 11th Street, Newark, New Jersey, and become members of this to-be-formed Chapter.

THE LOS ANGELES SFL

By T. Bruce Yerke

With the last meeting in December 1939, our Director for 3 years, Russell J. Hodgkins, announced that he was not considering a 4th "term." In his place was elected Walter J. Daugherty. Since then, things have been shaping up. Regular weekly meetings of be-

(Continued on page 126)



CARLYLE-QUADE SERIES STILL STARS

By D. B. Thompson

This is getting monotonous. By "this," I mean the absence of any below par stories in **THRILLING WONDER STORIES** in recent issues. I used to find one or two to pan in every issue. I don't mean by this that every story is excellent; far from it. But they are all readable and entertaining. At first, the novels were below standard; but now they are usually at or near the top in every issue. Since I prefer long stories, this pleases me very much.

And that brings me to "The Seven Sleepers." All of the Carlyle-Quade stories are vigorous, sprightly, and entertaining. "The Seven Sleepers" is the best to date.

Nelson S. Bond gets off to a fine start in T. W. S. with "Prisoner's Base." It's a plausible story, with real people. "Dosage," by Bill Brady, rates next—pretty high for an amateur; but the story is logically written and dramatic in style. Of course, it isn't likely that exposure to concentrated cosmic rays would have any such results; the effects, if any, would probably show up in later generations.

Schomburg's illustrations for "The Seven Sleepers" and Paul's for "Gem's of Life" are very good. Finlay is still tops, though.

The cover is better than usual, but it could have been improved a lot, by making the background look like some kind of sky, and by placing the printed matter in a strip across the bottom. The colors could have been subdued slightly, too.

I'll be glad to see "The Sun Maker." A couple of Williamson's longer stories are among my old-time favorites.—3136 Q Street, Lincoln, Nebraska.

A ROGUES' GALLERY FOR CHARACTERS

By John Guislin

Thanks for another swell issue of my favorite s-f magazine. "The Seven Sleepers" took first place. It was a really excellent novel. I cannot decide which of the two complete novelets came second. They were both good, and I mean good.

Let's have more stories like "Gems of Life." It was humorous and good. Next best, in order, were: "Tomorrow's Hero," "Dosage," and "The Thing That Killed."

I am enclosing my quarter for those eight s-f stories in booklet form, advertised in your magazine. They seem to present some attractive stories.

I noticed in the discussions department that you offer original illustrations for the best

ideas for contests and departments. How about a page set aside in your magazine for a "Popular Characters Department?" In this department you could have a colored photo of one of T. W. S.'s popular characters. Accompanying this photo you can provide the reader with a biography of the character, as prepared by his creator. Thus, we can become more closely acquainted with Pete Manx, Gerry Carlyle, the Anton Yorks, the Abbotts, etc.

Some of the characters selected for this department could be pictured with some form of planetary animal that he or she has become associated with. I vote for the first photo to be that of Gerry Carlyle holding a Prometheus in her hand. It would indeed be a colorful portrait.—Linacy, N. S., Canada.

(Your proposed department is very interesting, certainly worthy of consideration. But colored illustrations are rather impossible for a pulped-papered magazine. Wait for the Fifteenth Anniversary Issue of T. W. S. We'll have a surprise for you then.—Ed.)

THE MALE ANIMAL

By Joe Arcier

If this letter ever sees print, and my doubts remain the same, many reasons being subject of this letter, I know that I'm letting myself in for a lot of abuse and what not, even to being the possible object of extreme physical harm. So, here and now, I absolve T. W. S. of any responsibility resulting from the publication of this little suicide note.

A rather long and tedious method of getting to the subject—namely that your super-super-woman of the ages; that Catcher-of-'em-Alive (Including Woolfeiwistleduffs) Gerry Carlyle Strike (really she was out the first time at bat), is to be just a mite more expressive than usual—hammy.

I'm a man—a he-man. Married, so I can't be a woman-hater, and with three years' army experience in the Canal Zone. Is anybody interested—Delete if necessary.

What I'm getting at, why is the devil does Barnes want to write about a woman? I want to see men do those things, not a woman who frets because her picture was taken when her hair was messed—or her lipstick smeared. I can't see it—nope. A man could conceivably do all the things this Catch-'em dame does—but a woman?

I've been reading science fiction since 1928 . . . because I like reading that is different and that gives me a swell thrill in addition to being educational. But how in the world am I going to get a kick reading about some dame catching glooms or the like? When I read a story, I automatically become the hero—that's really the object of good fiction writing, isn't it? To get the reader so enthralled in the tale that he unconsciously slips into the leading role. Heck, folks, how can I ever imagine being a woman? And when the hero in a story doesn't appeal to the reader, the story flops—so floppo, Gerry—floppo!

Nope, I repeat, Barnes should keep Catsup—oop—Catch-'em home where she belongs and give the lead to Captain Strike—a much more appealing character. Wasting such good stories with a Woman character—bah! No doubt the stories do appeal to the female readers, but I bet you can't get 2 females out of 10 s-f fans.

That's about all, dear Editor. The magazine is fine as is—Brown excellent on covers. Inside illustrations are o.k. T. W. S. is my favorite magazine except when you throw

In this department we shall publish your opinions every month. After all, this is YOUR magazine, and it is edited for YOU. If a story in **THRILLING WONDER STORIES** fails to click with you, it is up to you to let us know about it. We welcome your letters whether they are complimentary or critical—or contain good old-fashioned brickbats! Write regularly! As many of your letters as possible will be printed herein. We cannot undertake to enter into private correspondence.

that female Frank Buck at us.—423 E. Main St., Waterbury, Conn.

(This looks like the beginning of a verbal feud almost as important between Carlyle and Quade. Here's a chance for all of Gerry's admirers to come to her defense. And what have you to say, Mr. Barnes?—Ed.)

SEEKS SCIENTIFILM SERIES

By Melvin C. Schmidt

I am not in the habit of writing to the science fiction magazines although I have been reading all of them for the last five years. Now several things have combined to cause me to write to you.

One reason is T. W. S.' increasing quality. Your magazine is rapidly becoming the best in the field. Maybe your new monthly publication is the reason this seems to be so (it used to be agony waiting two months for a new issue), but I prefer to think that the improvement in your stories is the reason. In the May issue the best story is your novel, "The Seven Sleepers." "Prisoner's Base" and "Tomorrow's Hero" rank second and third in my opinion. The other stories are average in quality.

The weakest point in the make-up of T. W. S. is the cover. Why not let Paul or Wesso do some once in a while? Either is vastly preferable to Brown, who seems to have a permanent place there. Your interior illustrations are all right but I would like to see Virgil Finlay more often.

The real reason for my writing this letter is my happiness over winning the second prize in your recent contest. I was certainly surprised when I opened the magazine and saw my name listed with the other winners. I had practically forgotten the contest. Of course, I knew all along that I was a cinch to win (oh, yeah). I am glad to see that Jack Williamson is coming up in the next issue. He is my favorite author, and the more often he appears in your magazine, the better I will like it. How about getting something from Lester Del Rey? He is one of the best of the newer authors but nothing of his has yet appeared in your magazine.

Your new idea of printing stories taken from scientific motion pictures seems to be a good one. Why not make Dr. Cyclops the first of a series of stories taken from movies? According to reports, there are many new fantastic films being released this year, and surely many of them could be adapted to publication in T. W. S. They could be illustrated by stills taken from the movies.

How about printing some more humorous stories? The Pete Manx series, while good, has so far failed to do more than irritate my appetite for this type of story.—R. F. D. No. 4, Mount Vernon, Indiana.

A PLEA FOR REALISM

By Leonard Gipson

Although fan letter writing isn't my particular forte, I could not help but take this occasion to get in some good words for two very fine stories that appeared in the May issue of T. W. S. The two that I have in mind are "Dictators of Creation," by Edmond Hamilton and "Gems of Life," by Eando Binder. I read most of the s-f publications that hit the newsstands and these stories are the best of the current crops.

Along with praising the writings of favorite authors that appear in T. W. S., I want to thank you for ignoring certain editorial taboos, and bravely permitting these two stories to appear. It seems to me that both Hamilton and Binder wanted to get in their best licks before the public press became too fascist; looked-for possibility due to the world's present political and economic unrest. I imagine that Hamilton and Binder embarked on what they thought might be a risky venture when they wrote these stories.

By thus going out on a limb with these two writers, I believe that T. W. S. deserves as much credit, if not more, than Hamilton and Binder for the appearance of these two

(Continued on page 120)

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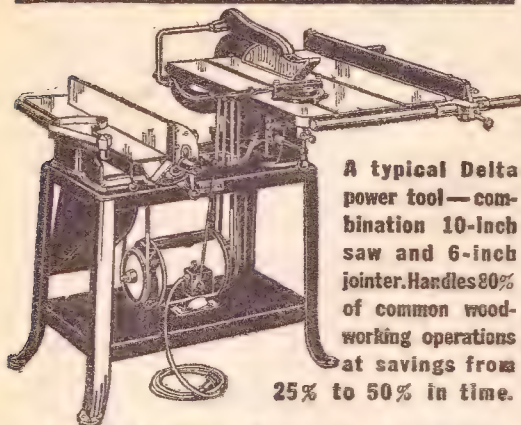
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(Continued from page 119)

stories. It is easy enough for a writer to venture forth and suggest that sometimes the underdog gets a little of the worst of it in this chaotic thing we call life, but it is much braver for the editor to go out on a limb and print their efforts in these times of "hush-hush" on certain things when it is so easy to be called nasty names.

I read all of Binder's and Hamilton's stories—including CAPTAIN FUTURE—in other s-f magazines and I am sure that these two stories are their most serious efforts thus far. Since science fiction deals with the yet-to-come, I believe that most "formulas" and "policy stories" should be dispensed with, as long as the story sounds plausible. Give us more offbeat stories like "Dictators of Creation" and "Gems of Life" and the readers of s-f will stay with you through hell and high water.

This is my first fan letter to any pro mag and I hope that it will appear. I thought it might be a change from the usual "Joe Doakes is better than Elmer Zlich" stuff; although that sort of criticism is o. k., too. I am simply speaking for a lot of fans and would-be writers who like realistic writing. And I still reiterate, we thank you for Binder and Hamilton in May's T. W. S. I know

others like Nelson S. Bond and Jack Williamson can also do as well if given the same leeway as Binder and Hamilton. Maybe they will!

I am glad to see Nelson S. Bond appearing in T. W. S. I have followed him in other s-f books and few excel him; particularly in humor.

The May issue of T. W. S., as a whole, is better than any other s-f book for the same month. CAPTAIN FUTURE is also swell. So are STARTLING and STRANGE STORIES, the other companion books—of which I read all past issues.—Santa Anna, Texas.

TWO WINNERS FOR TRACY

By Charles Hidley

May issue. Cover: again, the cover is not so good, not from an artistic standpoint, for it is one of the very few good ones of late, but from a story standpoint and the attitude assumed by Brown. Cover should have been a graphic description of the crew working on the hull of their ship with the approaching comet and the small sun in the jet background.

"Prisoner's Base" is a fine piece of introductory work by Bond and should be prophetic of his constant appearance in the pages of T. W. S. Binder's cover short amusing and especially well written. Don Tracy and Kelvin Kent seem to have become the fair-haired boys of T. W. S., and justly so. Pete Manx and two very original stories by Mr. Tracy have helped immeasurably to prolong the visits of these two accomplished new authors.

Oh-oh. Here is the one-story-an-issue that I did not enjoy, and by one of my top three favorites, too. Hamilton's "Dictators of Creation" had a superb underlying idea, but the insipid, trite and unhuman-like attitudes of the characters and their motives made it an annoyance for me. Paul's illustration for this was the best one in the issue. Page 67; gir-rrr! I only got honorable mention—and after all the work I did. SCIENTIFACTS is always a pleasure.

"The Thing that Killed"—hardly original and having the worst illustration of May to garnish it—still I enjoyed it. "Dosage" very good. The best of the amateur tales to date. It reads as if the author knew his subject expertly.

"The Seven Sleepers" was good, with a Weinbaum-ish plot, and original treatment, too. Thank the stars that the authors haven't had the two rivals fall deeply in love and leave the poor sucker stand in the background, as is usually the thing. I'll admit Schomburg is good and that he has a most original style for "monsters," but is he getting the monopoly on the novel section? Where are Paul, Finlay, Morey and Marchionni for this section? Brown, too. I most firmly believe that the stories should be printed in the type that is now used for the novel section. This is the ideal print, large enough to be legible but not baby print.—New York City.

KUTTNER'S CLASSIC

By Donn Brazier

There is one story in the April issue that achieves an A rating! Something like that occurs about once or twice a year, and I read all the s-f, fantasy, and weird magazines. This story, while not a masterpiece of literary craftsmanship, yet was breath-stopping in its theme and mood. After finishing it, I felt the same crawling on my skin that I have felt after reading some of Lowcraft's magnificent stories. There is no greater compliment that I can give to a story. A story that can produce a physical effect or change must be great. That is my definition of greatness.

You are now wondering which story this is. You should know, and I hope you accept more like it—if more can be written. The story is Henry Kuttner's "Beauty and the Beast."

The next time you publish a story like that indicate it in the blurb like this, "Remember

BEST FUN, FICTION AND FOTOS IN

'Beauty and the Beast?' Well, here's another to wrap your heart in lead." Etc... I shall be watching for such a blurb.—3031 North 36 Street, Milwaukee, Wisconsin.

ILLUSTRATE AUTHORS' LIVES?

By Phil Davis

I have just finished the May issue of **THRILLING WONDER STORIES** and I am becoming more and more sure that there is only one really good science fiction mag on the stands and that is—your publication! With every issue the stories and pictures become just about 100% better.

My favorite story in the May issue was "The Seven Sleepers." Let's have more of Quade and Carlyle, not to mention Tommy Strike. However, I think that Barnes and Kuttner ought to lend their talents to other varieties of story occasionally.

In answer to your query for new departments in **THRILLING WONDER STORIES**, I have a suggestion. **STARTLING STORIES** has an illustrated feature about the great men of science. Why not have a similar department in **T. W. S.**, depicting the highlights in the lives of famous science fiction authors? You could illustrate the biographies of H. G. Wells, Jules Verne, and all the famous s-f authors.—New York City.

"SEVEN SLEEPERS" TOPS

By Bob Praker

Just finished reading the May issue of **T. W. S.** and, as usual, found it the best s-f mag on the stands.

"The Seven Sleepers" rates tops with me and the others rate as follows: "Tomorrow's Hero," "Prisoner's Base," "Gems of Life," "Dictators of Creation." "The Thing that Killed" rates next. On about the same level comes "Dosage;" this latter story seems far above the average amateur s-f writer.

How about a cover by Schomburg? Other artists I like are: Brown, Binder, and Paul. Glad to hear there's going to be a Pete Manx story in the next issue.

Yours 'till Venus goes into a tailspin.—9658 Broadstreet, Detroit, Michigan.

WORLDS AND WORDS

By J. F. Daarnhouwer

"Worlds Within Worlds" in the March issue was a fine story. What a pity, though, that Mr. Kummer got his nationalities mixed up. One of the leading figures is Professor Nicholas Tromp of Leyden University, to whom Mr. Kummer refers once as a Dutchman and later on as a Hollander. Consequently one expects to hear Professor Tromp express himself in the Dutch language, but imagine my surprise to find him use German exclamations.

I do not object to see the words Nicolaas and Leiden spelt wrongly, but I call it a bit thick to hear a Dutchman with the old and famous name of Tromp use expressions like **Herr Gott, Himmel and Donnerwetter**, which are typically German.

Several of your authors are in the habit of introducing foreigners into their narratives and have them say a few words in their own language. Only very rarely the idiom is right. It would make the reading of such stories ever so much easier if these expressions could be checked before printing.—3 van Hoorn-schhoutweg, Huizen, N. H., Holland.

(Many thanks for your interesting letter. We have passed it on to Frederic Arnold Kummer, Jr., the author of the novel you mention. His reply follows.—Ed.)

MR. KUMMER'S REPLY

Dear Mr. Daarnhouwer:

In the first place, let me thank you for your very kind words in reference to my story
(Concluded on page 122)

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(Concluded from page 121)

"Worlds Within Worlds." It's very thrilling to know that people in other parts of the world read and like one's work. And since your letter arrived on my birthday, it was quite a pleasant greeting.

About the Germanic expressions used by my Dutch character. This, like so many things, can be attributed to the war. I had just completed the story, was just about to mail it to my publishers, when the storm broke in Europe. Now, it so happened that I had made my character of "Tromp" a German named "Schmidt" in the original script, but when war was declared I recalled the current American disapproval of the Nazi regime, particularly since this country fought against Germany in the last war, and decided that an archaeologist from a neutral nation would be a safer bet. So just to play safe, I changed him to a Hollander with the grand old name of Tromp.

However, the publishers were in haste to get the script, and I was in an equal hurry to get it to them. So I made a few changes in names and places . . . but completely overlooked the exclamations in the hurry of the moment, what with extras out every few moments, news flashes coming over the radio, and all the other excitement that attends the beginning of a war. This is really not an alibi, since I was quite wrong in my use of Germanic expressions . . . but I wanted to explain how it happened that I changed my character from German to Dutch and entirely forgot to change his exclamations. Rest assured that I shall be more careful in the future and thanks for calling this matter to my attention. I trust this will not alienate me from my friends and readers in the Netherlands.—Baltimore, Maryland.

THE STORY BEHIND THE STORY

(Continued from page 11)

STORIES would print a yarn like that. It's just too—too something-or-other.

I know it, he said; but that's the way it is, I'm in the grip of this mad idea; and until I can throw it off I'll never be able to write again. Alas, I'm afraid my career as a writer is finished. It's been five years already.

I got an idea. It hurt me to see his life wrecked.

I'll write it, I said. Only changing it a little. I'll duplicate just a few people, and even them up in pairs at the end so it all turns out happily.

For the first time in months I saw Gilmore's face relax in a smile. Gratefully he pressed my hand. I went home, paced up and down for a while, and then sat down and got everybody in the story into one awful jam; but then I couldn't think of how to get them out of it—nothing good enough.

So I paced up and down some more and finally remembered an idea I'd had many years ago in studying Behaviorism. Since—as I pointed out in the story—thinking is all unvoiced speaking, and suppression of the overt motions of the vocal organs is a learned thing, occurring in childhood, and since experiments show that such motion is never entirely suppressed—could there not be invented (first stage) an apparatus which would measure and reproduce as speech the larger motions of the vocal organs in speaking, and then (second stage) the exactly similar but minute motions in thinking, and so deliver a person's "hidden" thoughts? Theoretically it's entirely possible!

For its solution all that would be needed would be competent direction, a subject who could think, and a couple hundred thousand dollars. At the time, I remember, felt like trying the job myself, but, as I also remember, I lacked the money. Ah genius, such is the way you are thwarted in this still barbarous and unscientific social system! So I forgot my great idea for years, and only fished it up in time to finish the story and save my friend Gilmore.

Of course, I did sort of half expect a check.

JOURNEY TO LIMBO

REMEMBER Alfred Bester, winner of the first amateur story prize-contest sponsored by this magazine? His first yarn, "The Broken Axiom," met with such an enthusiastic response Bester was encouraged to try his hand at additional stories.

Alfred Bester is now a regular staff writer for **THRILLING WONDER STORIES** and **VOYAGE TO NOWHERE**, a novelet in this issue, represents his latest and best contribution to date. It's a smashing story of three interplanetary outlaws . . . and their futile efforts to buck the Fates.

Incidentally, this is the first story we have ever published that features an all-interplanetary cast. There is not even one Earthman character in this yarn. More of this variety, if you want them. And here's a word with the author:

The background of "Voyage To Nowhere" stretches away back to 1927 or thereabouts. I had just discovered the world of ideas and was intoxicated with the find. I ran around like a dry sponge, sopping up ideas and notions, reading anything I could lay my hands on. I can remember going to bed with a pile of magazines and books beside me that included Newton's Principia, Ouspenski's Tertium Organum, several science fiction magazines, Collier's, Cosmopolitan, Gogol's Dead Souls and Flammarion's Psychic Phenomena.

BEST FUN, FICTION AND FOTOS IN

I don't think I understood more than a third of what I read.

But two things stand out in my memory. First, the thrill of reading science fiction, for it provided an agar for thought that we had lacked until then; and second, a great story by Cobb, "Faith, Hope and Charity." I resolved that some day I'd write as great a yarn as "Faith, Hope and Charity," and that since I enjoyed science fiction so much, I'd write a science fiction story. The two became one in "Voyage To Nowhere," which used the Cobb story as its backbone.

Perhaps I haven't written an especially great story, but at least I've paid tribute in some small part to THRILLING WONDER STORIES. You who learned to read after 1927 will never know what a gap science fiction filled, what an imaginative need it answered. The transition from Poe, Wells and Verne to Weinbaum, Binder, Cummings and a hundred other immortals was as revolutionary as the talkies. And I, for one, am profoundly grateful.

SCIENTIFIC COURTSHIP

THE boy-meets-girl theme has long been a sure-fire theme in popular romantic fiction. In fantasy literature, however, unusual trimmings are required to make a casual theme go over. So Willard E. Hawkins, author of ROMANCE ACROSS THE AGES, had his boy meet his girl—but separated them with a seemingly insurmountable barrier—centuries of time! For the boy lived in the future, and the girl dwelled in the past. So boy loses girl!

At any rate, love laughs at locksmiths and physicists, as you'll discover when you read this streamlined comedy of scientific courtship. The basis for this delightful fantasy? Read the author's letter:

You say THRILLING WONDER STORIES readers would like to know how I came to write "Romance Across the Ages." Well, it is fascinating to trace the progress of a yarn from story germ, through the period of subconscious gestation, to the final travail of composition. Especially so to the author, who is always hopeful of finding a blue-print that will make the writing of future yarns easier.

Trouble is, the blue-print never seems to work a second time. I caught the idea for a recent science fiction yarn while sitting in a barber's chair. Out of the half-dreamy state induced by the monotonous drone of the clippers as they traveled around and around my skull, came the suggestion of shaving the earth over and over until its substance gradually diminished to nothing—and out of this a yarn was born. But though I have diligently sat in barbers' chairs since that time and tried to make my mind receptive, no more inspirations have been forthcoming from this source.

Usually the starting point for a story is some incident, however trivial; but the germinal thought for "Romance Across the Ages" was even less tangible. I merely happened to be thinking—or well, you can call it thinking. Vagrant thoughts such as this passed through what I jokingly call my mind: "There are harmonious colors and clashing colors; there are harmonious combinations of sound, and there are dissonances; there are people who get along together and those whose personalities clash. Probably similar laws back of all—harmonious vibrations and inharmonious ones."

All this was idle speculation. It wasn't directed thought and I didn't regard it as leading anywhere. The reflections just idly drifted across my consciousness. But my subconscious mind—where I have discovered that most of the real work of writing is done—must have sensed possibilities. At any rate, when I sat at my typewriter a few evenings later, bridging my brain for a story idea, a half-formed opening scene took shape. I saw a queer, man-like creature writing a love

(Continued on page 124)

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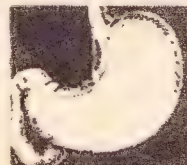
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(Continued from page 123)

letter to his "vibrational complement." As I visioned him, he lived in a world where scientific analysis of vibrations had progressed to the point where mates were selected from the standpoint of vibrational harmony.

This, of course, meant either another world or a future period on this world. And then the thought occurred: "What if this being's vibrational complement lived at a period of time remote from him?"

They do say that the way to write a love story is to interpose a seemingly hopeless barrier between the lover and the girl. Certainly no more insuperable barrier could exist than the fact that the gal lived in one century and the lover in another. And obviously there was no solution to such a lover's dilemma except time travel.

From this, the story grew. The original idea was that the future man would win the girl—once he had gone to all the trouble of locating her in time—but story characters have a way of coming to life and taking things into their own hands—and the yarn didn't seem to work out that way after Johnny elbowed his way into it.

I am afraid all this is extremely nebulous. But then, writing a story usually is just a process of snatching at some nebulous, fleeting suggestion, which comes into the mind from God knows where. It begins to take form in the subconscious mind—characters suggest themselves—bits of dialogue—actual scenes. Finally comes the painful ordeal of capturing these elusive suggestions and shaping them into a story.

I wish I knew more about the scientific laws governing this creative process. I wish I knew some way to make the subconscious mind do all the work, instead of merely nine-tenths of it.

MONSTER FROM BELOW

WE'D hate to have been walking across the George Washington bridge at the time the giant depicted on this month's cover came along. But the gentleman—Zarz—if you've read H. L. Gold's story, **OUT OF THE DEPTHS**, isn't as bad as he looks. As a matter of fact, good things also come in big packages, and Howard Brown's giant is no exception. Where does he come from? Let Mr. Gold tell you; he knows his science fiction from A to Zarz.

In a "Story Behind the Story" letter some time ago, I tried to explain the difficulty in tracing the genesis and subconscious development of stories. **FROM THE DEPTHS**, however, is fairly easy to track down.

When I visited the home of T. W. S.' editor, I had to ride across the George Washington Bridge twice—once there and once back. The second time across, I was struck with its hugeness and apparent indestructibility. It really is a monster of a bridge, with enormous girders, cables the thickness of sewer pipes, towers that rise far above the roadway. A rising river could never destroy it. Bombs, squarely placed, would considerably damage it, of course. But would they tear down the whole thing? I doubt it.

Yet a giant, assuming one could find one that large, could tear it apart. Where would he come from? Obviously he would be descended from the giant reptiles. This idea tied in with something that had been puzzling me for a long while. Surely, in the millions of years that reptiles dominated Earth, at least one species must have arisen that displayed an alien yet comparable intelligence to mankind's. Cold-blooded beasts can't stand great cold, as the Ice Ages must have been. But the seas are considerably warmer than the land. Why could they not have taken to water?

Also, there are hundreds of legends in every language of visitors from the sky. Twenty



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BEST FUN, FICTION AND FOTOS IN

thousand years, the length of time that man has spent in mastering Nature, might have seen a few such visits. But in the millions of years the reptiles were rulers of Earth there must have been many more. Thus I accounted for the legend of the Rofubians, who were to bring back their swarm of expropriated people.

All the other factors, such as the chlorine-breathing Rofubians, the impressive size of Zarz, and so on, were routine clothing of a plot skeleton. The important thing was the pictorial value of a giant striding through man's domain, his sensations, and his inevitably hostile reception. Did you get my feeling of overwhelming hugeness?

SCIENTIBOOK REVIEW

DR. CYCLOPS, by Will Garth. 255 pp. Phoenix Press, Inc., New York, N. Y. \$2.00.

COMPLETING the cycle that included the Paramount production of the Technicolor fantasy and Henry Kuttner's novelet version appearing in the last issue of **THRILLING WONDER STORIES**, Will Garth now gives science-fiction fans and adventure and mystery readers a 65,000 word novelization of the activities of Dr. Alexander Thorkel, the super-scientist in the Amazon jungles.

In this book-length version, the author has picked up the nucleus of the little scientific group composed of Dr. Rupert Bulfinch, well known biologist and his pretty and capable young assistant, Mary Phillips, also holder of a doctor's degree, on board a Coastal Steamer in Western South America. The story of Mary's interest in Bill Stockton, spirit-broken mining engineer gone native, and the pretty feminine scientist's desire to help him make something out of his life, takes on new appeal.

The journey of the mule train of Steve Baker, vagabond mine prospector, to the Amazon headwaters and the camp of the sinister Dr. Thorkel is given new color and movement. An overtone of weird mystery and native legend catches us and carries us along as the native Peruvians shy away from anything connected with Dr. Thorkel's mysterious camp in the depths of the jungle.

The hard-bitten, single-purpose action of the half-mad Dr. Cyclops—a name fastened to Thorkel by his unwelcome guests, grows in intensity and depth until his rage and scientific curiosity both combine to drive him to experiment on five humans, in place of the animal specimens he has been employing in the past.

The conflict between the "giant" Cyclops and the five miniature adversaries he has created is carried along in a mixture of humorous and serious incidents until finally the remnants of the original quintette, reduced by two murders, discover a method of killing the mad super-scientist.

The book presents many new angles on the "Dr. Cyclops" story of men in miniature, and is well worth adding to your science-fiction library for reading and reference.

—C. S. S.

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LOOKING FORWARD

(Continued from page 117)

tween 20 or 25 have been common. A speaker every other week has been the motto, and to start off, we had on the night of January 11, 1940 the presence of Dr. Stephen S. Myrick, head of the History Dept. of Hollywood High School. Since then we have had gilder experts, rocket experts, and aviation experts. A new bi-monthly magazine has been started, SHANGRI-LA. All in all, the year 1940 is going to show a genuine rejuvenation in Los Angeles.

THE QUEENS SFL

By Mario Racic, Jr., Sec'y

The present project of the QUEENS SFL is to produce an amateur movie of Fan Activities with an eye to have it finished in time to show at the Chicago STF CONVENTION this coming September. Parts of this film have already been taken by Will Sykora and such scenes as the soft ball game of the WORLD STF CONVENTION, The Philly Conference of 1938, and others will be part of the film. Plans are being laid at present for the rest of the film, so that a complete covering of fan activities will be shown. A Queens SFL meeting will be shown. The publication of FANTASY-NEWS, well known news weekly and other scenes will be filmed. This, we believe, will be the first attempt of its kind in STF history. VADJONG, our official organ will be stepped up to monthly publication. Many famous STF fans, authors and artists are members of the Queens SFL. Frank R. Paul, Eando Binder, Malcom Jameson are members. Willy Ley, Mort Weisinger, John W. Campbell, Jr., are frequent visitors. Monthly meetings are held in Astoria, New York.

THE CHICAGO SFL

The Chicago SFL continues to hold regular meetings in connection with the coming CHICAGO STF CONVENTION this September and the publication of fandom's only printed fan mag, STARDUST.

THE PSFS

The Philadelphia Science Fiction Society (PSFS), SFL Chapter in Philadelphia holds two interesting meetings a month and publish their club organ PSFS NEWS after each meeting. Plans are now being laid for exchange visits between members of the PSFS and the QUEENS SFL. Members of the PSFS are expected at the April 7th meeting of the QUEENS SFL.

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ANSWERS TO SCIENCE QUIZ

(See Pages 52-53)
POSITIVE OR NEGATIVE

1. False.
2. True.
3. True.
4. True.
5. False.
6. True.
7. False. Birds are also.
8. False. It has a central mass of grey matter (nerve cells) and an outer mass of white matter (nerve fibers) surrounding it.
9. True.
10. False.
11. True.
12. True.
13. True.
14. True.
15. False.
16. False.
17. False. The Ionosphere is the Kennelly-Heaviside layer.
18. True.
19. True.
20. True.

TAKE A LETTER

- | | | |
|------|------|-------|
| 1. b | 5. a | 8. a |
| 2. d | 6. d | 9. d |
| 3. c | 7. c | 10. b |
| 4. b | | |

TRIPLE PLAY

- | | | |
|-----------|----------|-------------|
| (1)—11, 7 | (5)—3, 4 | (9)—12, 8 |
| (2)—8, 10 | (6)—6, 2 | (10)—10, 11 |
| (3)—9, 1 | (7)—7, 5 | (11)—1, 3 |
| (4)—5, 12 | (8)—2, 6 | (12)—9, 4 |

STAR-WANDERING

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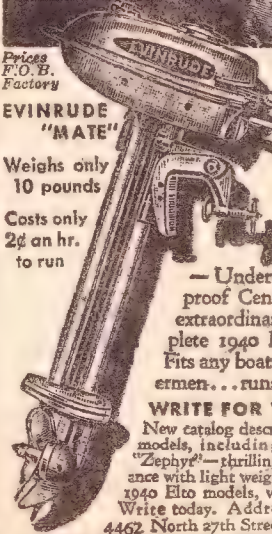
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TANGLED PATHS

(Continued from page 92)

It was fact. There in the sky was a great, ragged globe of fire. Under its fierce rays the snow of water was melting, as in the early springtime. The snow of frozen air had vanished, evaporating into gases.

"Days ago it must have happened!" someone shouted. "We missed the change because we kept ourselves boxed up in the underground dark!"

Gradually, understanding of the miracle was entering confused minds. Questions and explanations were being traded in the growing crowd.

Lois, lightly clad, but heedless of the still frosty breeze, stood there in the slush, and dreamed of the return of things that were old and comfortable and friendly. A tropical Earth. Trees sprouting up again from the roots, for life is hard to kill. Seeds from the deserted villages and cities. Even small wild creatures, rabbits, squirrels, and so forth, might have survived the blizzards in the refuge of deep crevices in the ground, where the numerous new hot-springs boiled.

Lois glanced at her watch.

"Maybe you're way ahead of me, 'Ric," she said to her husband beside her. "But I believe I begin to catch on." Briefly she searched the sky before continuing: "The Moon—Earth's satellite, I mean, of course—should be visible now, 'Ric, according to the new calendar—the new motions of the spheres. Only it isn't there. And that new sun is quite close to the place where you'd look for the Moon!"

"That's the answer, sure enough!" she went on, nodding. "When Jupiter was pulled out into space, the orbits of its satellites were widened by the jerking attraction of Freiboldt's Star. Mars, Earth and its Moon, and Venus, were dropped into Jupiter's system of attendant worlds, quite far out. Luna still circled Terra, because at this distance, the gravity of Jove isn't strong enough to tear them apart.

"Only there was a flaw in the new arrangement of worlds. It was like a broken tooth in one of the cog-wheels of a clock. Somewhere, the orbit of one of Jove's moons crossed the orbit of our Moon. A collision, sooner or

BEST FUN, FICTION AND FOTOS IN

later, was inevitable. So we have a miniature sun, circling Earth, born of the smashup of two satellites—Luna, and a small moon of Jupiter.”

Eric Mundson nodded.

“No wonder the Martians wanted to come here,” he said. “If we had had a first-class astronomer among us, we would have known what was going to happen, too. Mars’ orbit parallels ours, but is about half a million miles farther from Jupiter. In circling the latter, the two worlds are quite close together for a while; but Earth, moving a bit faster, and in a smaller orbit, creeps ahead. Mars must be far behind, now, where the rays of our little sun are too feeble to do any good.”

Eddie Barnes had wormed his way unnoticed through the crowd.

“Will this sun shine—always?” he asked with some concern. “Or will it too, walk out on us, sometime?”

“It doesn’t work quite like the old sun, Eddie,” Mundson responded. “It isn’t massive enough to develop the pressure necessary to release atomic energy within itself. It’s just a mass of incandescent vapor and liquid rock, heated by two worlds bumping into each other. It’s cooling all the time; but because, in spite of everything, it’s really awfully big, it’ll take a long time to cool. It’ll shine for a couple of thousand years, anyway. And by then men will probably be awfully smart. They’ll know—I hope—how to build apparatus to take its place.”

“How do we know some planet won’t bump into Earth too, and kill us all?” Eddie persisted.

The question was a good one at this time of cosmic disorder, but after a moment of uncomfortable thought, Lois undertook to answer it.

“The Martians would have known, Eddie,” she said, “They would have figured things out by mathematics, and if they’d discovered anything bad, they wouldn’t have tried to come to Earth.”

The Martians! Lois and Eric Mundson were remembering that strange, brave demon, dying there in the pit where that projectile had landed. And in their throats was the hard tightness of unnamed regret.

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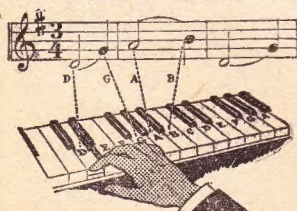
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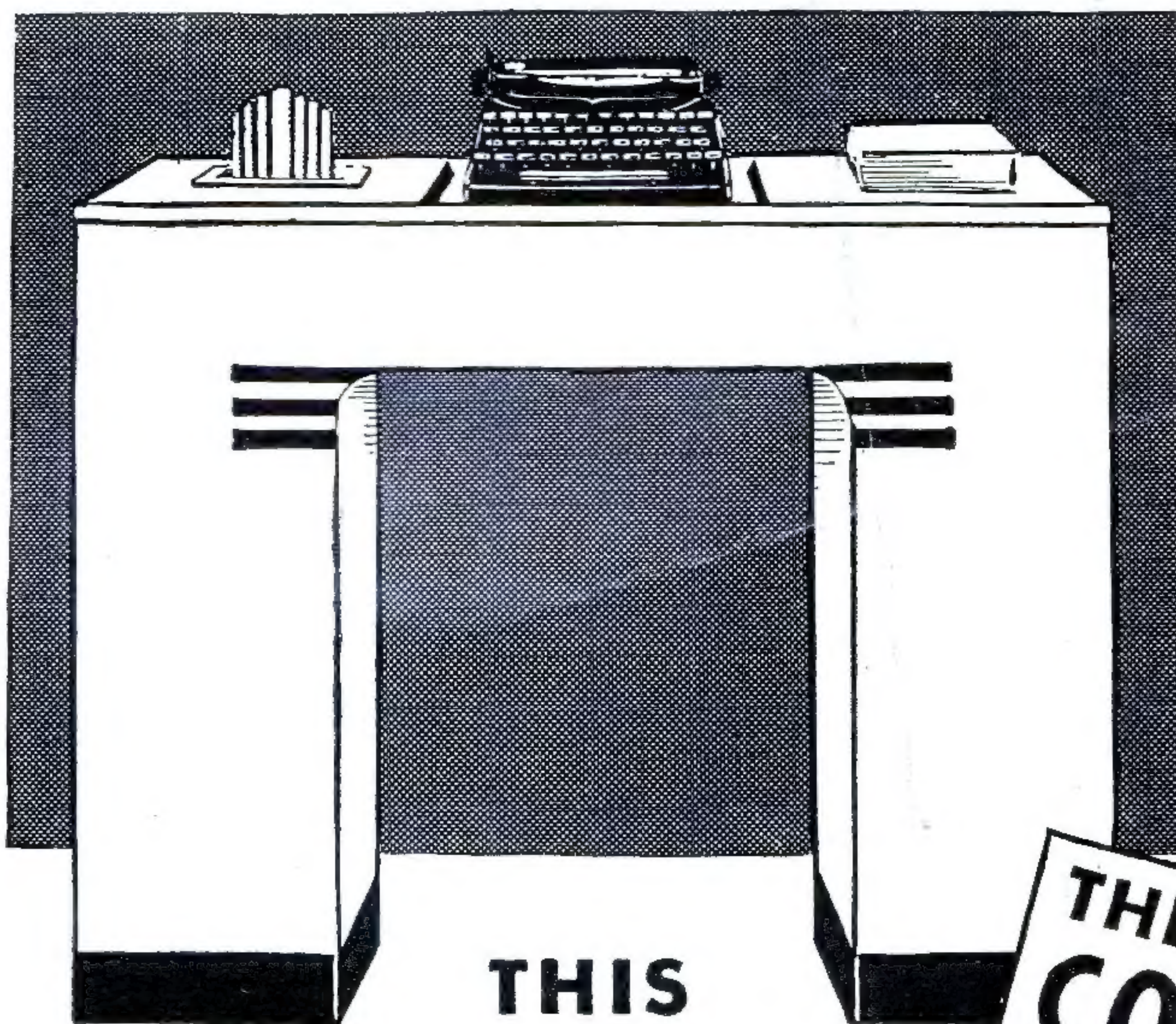
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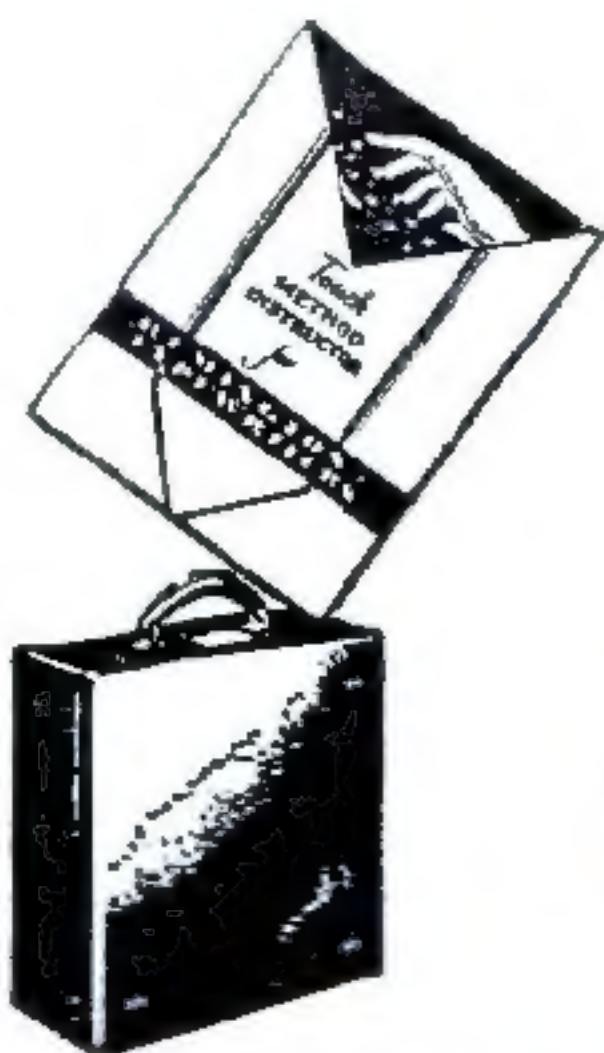
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